REPORT RESUMES

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COST ANALYSIS IN DAY CARE CENTERS FOR CHILDREN. FINAL REPORT TO U.S. CHILDREN'S BUREAU.

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DESCRIPTORS- *COST EFFECTIVENESS, *DAY CARE SERVICES, *COSTS, RESOURCE ALLOCATIONS, TEACHERS, TEACHER AIDES, STUDENT TEACHERS, SOCIOECONOMIC BACKGROUND, *PERSONNEL POLICY, STUDENT TEACHER RATIO, SALARIES, METHODOLOGY,

THE PURPOSE OF THIS PROJECT WAS TO DEVELOP AND TEST A METHOD FOR ANALYZING THE COSTS OF DAY CARE CENTERS ON A COMPARABLE BASIS. THE METHODOLOGY EMPLOYED WAS THE SELECTION OF A GROUP OF REPRESENTATIVE CENTERS IN THE BOSTON AREA AND USE OF THESE AS A TESTING GROUND. THE EMPIRICAL FINDINGS OF THE SIX CENTERS SELECTED FOR STUDY ARE ANALYZED TO PROVIDE A MEASURE OF THE GENERAL UTILITY OF THE COST ANALYSIS PROCEDURE. THESE FINDINGS ARE PRESENTED UNDER THREE GENERAL TOPICS--(1) FINDINGS BASED ON THE COST ANALYSIS INCLUDING DESCRIPTIONS OF THE SCHOOLS STUDIED AND PROBLEMS OF COMPARABILITY, (2) FINDINGS BASED ON A TIME ANALYSIS CONCERNING THE DISTRIBUTION OF SALARY COSTS ON THE PART OF PERSONNEL WHO PERFORMED THE MULTIPLE FUNCTIONS, AND (3) COST OF PROGRAMS IN RELATION TO OTHER FACTORS, INCLUDING SOCIOECONOMIC DIFFERENCES AMONG FAMILIES. RECOMMENDATIONS ARE MADE CONCERNING BOTH COST ANALYSIS PROCEDURES THEMSELVES, AND PERSONNEL POLICIES. (HW)

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FINAL REPORT

COST ANALYSIS IN DAY CARE CENTERS FOR CHILDREN

BRANDEIS UNIVERSITY

CHILDREN'S BUREAU GRANT NO.R-122 5/31/66

FLORENCE HELLER GRADUATE SCHOOL
FOR ADVANCED STUDIES IN
SOCIAL WELFARE

BRANDEIS UNIVERSITY
WALTHAM, MASSACHUSETTS

COST ANALYSIS IN DAY CARE CENTERS FOR CHILDREN

FINAL REPORT SUBMITTED TO

U.S. CHILDREN'S BUREAU

GRANT NO. R-122

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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May 31, 1966

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PART II

TIME ANALYSIS MANUAL

ACKNOWLEDGEMENTS

In the three years that have passed since this project was initiated, a number of people have contributed to its progress and development. The major contributions were made by the two study directors. Bernard Greenblatt served as study director during the period from September, 1963 through December 1964 while on leave from the United States Children's Bureau in order to pursue doctoral studies at the Florence Heller Graduate School for Advanced Studies in Social Welfare at Brandeis University. Mr. Greenblatt was responsible for directing the research activity during this period, including establishment of relationships with the day care centers, organization and direction of the time study, and drafting of the Time Analysis Manual.

Mrs. Mildred Guberman served as assistant study director from August, 1964 until she replaced Mr. Greenblatt as study director in January, 1965. In the latter capacity, she supervised the completion of data collection and then bore major responsibility for data analysis and interpretation, as well as for writing the final report. Gayle Thompson was with the project as research technician from August, 1964 until April, 1966, assisting in data collection and analysis, and in preparing the final report.

At earlier stages of the project, assistance was obtained from Doris Fraser, who did an initial exploratory study in the summer of 1963; Lucille Kurian, Research Associate from September, 1963 to August, 1964; and Beverly Carter, Research Technician from September, 1963 to September, 1965. Acknowledgement is also given to the clerical assistance provided by Gwen Whately and Melva Gray.

The consultative services provided by the accounting firm of Peat, Marwick, Mitchell & Co. are indicated in the body of the report. Steve Kitzes of the firm's Boston office worked closely with the project staff and took direct responsibility for organizing the collection and interpretation of accounting data. General guidance to the project in developing its procedures of cost analysis was provided by

W. Lynn Fluckiger, partner in the firm's New York office.

Consultation on statistical methods for conducting the time study was obtained from Dr. Robert Reed, head of the Department of Biostatistics at the School of Public Health at Harvard University.

The quotations from A Manual for Cost Analysis in Institutions for Children by Martin Wolins appear with the permission of the Child Welfare League of America, Inc.

The project was conducted under the auspices of the Research Center of the Florence Heller Graduate School and benefitted from the use of its facilities and services.

The study could not have been done without the excellent cooperation of the day care centers that participated. Their help is gratefully acknowledged although they must remain anonymous.

Arnold Gurin

AG/grr

CHAPTER I - INTRODUCTION

The primary purpose of the Cost Analysis Project has been to develop and test a method for analyzing the costs of day care centers on a comparable basis. The Florence Heller Graduate School began this project in June, 1963 at the request of the United States Children's Bureau which is concerned with the costs of day care and the need to develop guides that would be helpful both to the Bureau and to the states in administering grants for day care services.

The methods of cost analysis used in this study will be discussed in Chapter II. Chapters III-V present the data on costs obtained from six day care centers which have participated in the study. Although the objective of this project was to develop a method of cost analysis rather than to examine the costs themselves, the results of the analysis in these six centers are essential to an evaluation of the methods employed. The final chapter will evaluate the effectiveness of the cost analysis methods developed in the project and will present recommendations on various issues of cost analysis in day care.

This introductory chapter deals with developments both in the field of day care and in the use of cost analysis methods that formed the background for the Project.

Definition of Day Care

There are many problematic issues in the field of day care at the present time, of which cost analysis is but one. While the project was limited to the issues of costs and did not address itself to a resolution of the more basic issues in the field, it was, of course, necessary to be conscious of those issues in approaching the question of cost.

The project was also limited to group day care, and did not concern itself with family day care. In regard to group day care facilities, there is a basic problem of definition, particularly in reference to the distinction between a day care center and a nursery school. Since the heart of cost analysis is to relate costs to functions, this problem of definition needs clarification as a basis for discussing costs.

In her "policy paper" on day care, Mayer identifies "two important mainstreams of thought in the day-time care of children below the age of six" -- welfare and education.1) Historically, day care centers had their origin in efforts to provide essentially custodial care for children of the poor, whereas the early kindergarten movement was educationally-oriented and directed more toward the children of people of means. Mayer points out, however, that by the beginning of the century, "day nurseries...began to incorporate constructive educational and developmental experiences for young children. Teachers, not nursery maids, began to be hired."2)

There is, nevertheless, a concern on the part of experts and agencies responsible for these services to establish distinctions on the basis of the primary purpose served by the program. One of the most important existing definitions is the one provided in the 1962 Public Welfare Amendments to the Social Security Act, which define day care as a "child welfare service" in the following terms:

> .....the term "child-welfare services" means public social services which supplement, or substitute for, parental care and supervision for the purpose of (1) preventing or remedying, or assisting in the solution of problems which may result in, the neglect, abuse, exploitation, or delinquency of children, (2) protecting and caring for homeless, dependent, or neglected children, (3) protecting and promoting the welfare of children of working mothers, and (4) otherwise protecting and promoting the welfare of children, including the strengthening of their own homes where possible or, where needed, the provision of adequate care of children away from their homes in foster family homes or day-care or other child-care facilities.3)

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1) Mayer, Anna, with collaboration of Alfred J. Kahn, Day Care as a Social Instrument: A Policy Paper, Columbia University School of Social Work, January 1, 1965, p. 11.

2) Ibid., pp. 22-23.

3) Section 528 of Title V, Part 3 - Social Security Act.

The importance of the Amendments stems from the fact that they make possible the allocation of funds to states for day care services. Furthermore, they establish criteria to be met by the states for receiving and allocating funds.[1) The Amendments stipulate that day care services receiving federal funds should provide day care on the basis of need as evaluated under criteria established by the State and should give priority to "members of low-income or other groups in the population and to geographical areas which have the greatest relative need for extension of such day care." Although the Amendments recognize the necessity for cooperation among health, education, and welfare services in the states, the definition of day care as a child-welfare service excludes those facilities which are primarily educational in function. Funds are allocated to the States through Departments of Welfare. The State Welfare Departments are instructed to work out cooperative relationships with state education authorities. However, day care programs sponsored by a State Department of Education, as in the case of California, are not eligible for federal grants under the Act.2)

The U.S. Children's Bureau indicates that the purposes of day care are "care and protection" and supplementary parental care as a way of keeping families intact and preventing the neglect of children. Day care is directed to those families which require assistance in their child-rearing responsibilities and priority is given to low-income families. Facilities which are "primarily educational, recreational, or therapeutic" in purpose do not constitute day care services. Some of the requirements for state day care programs are listed as follows: They should be administered and supervised by professionally trained social workers; the determination of need should be made by social workers; the service should be provided only when the family situation warrants it, as determined by casework diagnostic study;

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1) Section 523 of Title V, Part 3 - Social Security Act

2) Mayer, op. cit., pp. 12

and the programs should contain health, education, and welfare components.

The Children's Bureau stresses the importance of the welfare component of day care when it states: "It is essential that the identity of the day care program as a specialized child welfare service be recognized. Only under such circumstances will the program receive adequate attention and become available to all children in need of day care."[1) In speaking of the need for cooperation of health, education, and welfare services, and for the development of sound educational programs in day care facilities, James L. Hymes, Jr. offers a contrasting view:

> As an educator, I plead for more eagerness on the part of my profession to play its full responsible role. But more important: As a specialist in child development, I plead for more cooperative and integrated arrangements between welfare, health, and education. We must not let our state and federal historic administrative arrangements, perhaps fitting for a past that was quiescent, stand in the way of progress in a present that is alive with concern for the young child.
>
> In a time of ferment and change, I plead that we do not yet crystallize our administrative arrangements. Most especially, I urge that we do not settle too early and too firmly on the decision that day care must be the concern primarily of welfare. Such a decision is certainly premature.2)

A major document laying down the lines of responsibility between welfare and education is the joint memorandum developed by the U.S. Office of Education and the U.S. Welfare Administration:

> The essential function and purpose of pre-school education is the training, education, and development of the child. By contrast, the primary function and purpose of a day care service is the care and protection of children. The focus is on supplemental family care. The purposes and the reasons for which a child and family need and use a service distinguish a day care service from educational programs, which are generally referred to as nursery school and kindergarten.3)

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1) Guides to State Welfare Agencies for the Development of Day Care Services, Children's Bureau, U.S. Department of Health, Education and Welfare, June, 1963, p.3.

2) James L. Hymes, Jr., "Education-An Essential Component of Day Care," Newsletter, National Committee for the Day Care of Children, Inc., New York City, Vol. 5, No. 4, Spring, 1965.

3) Memorandum of Agreement Regarding Day Care Services and Pre-school Education, Department of Health, Education, and Welfare, Office of Education, Welfare Administration, January 6, 1965.

These and other definitional attempts to distinguish between day care centers and nursery schools focus on the primary purpose of the program. Sometimes this criterion is combined with one based on the conditions or needs of people using the program, as in the Children's Bureau's references to the individual needs of families as a precondition for the assumption by the state of responsibility for care. Mayer, in summarizing the distinctive characteristics of day care, points to purpose (care and protection), the sharing of child rearing responsibilities with the parents, and the existence of a needs test.(1)

The importance of these definitions, from the point of view of this cost analysis project, is that they are based on elements which have to do with intent and with needs of users and providers of the service, but that they are not based on differences in the content of the program itself. This is especially true in view of the fact that both welfare and educationally oriented services stress the need to bring components of health, welfare, and education together in a day care program. While a difference in departmental auspices at the state level may be very important for many reasons, there is not necessarily an immediate reflection of such differences in what actually takes place day by day within a group facility. In short, it would be very difficult, on the basis of the extant definitions, to determine, merely by observing the program of a group facility, whether it is a "day care center" or a "nursery school."

There is one difference in program which is clearly relevant to costs-namely, whether the care is provided for the entire day or some portion of the day--generally half a day. This distinction has proved the most meaningful one in analyzing costs, as the subsequent discussion will indicate. It is also related, obviously, to purposes and needs.

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(1) Mayer, op. cit., p. 15

Some children, depending upon the circumstances of their homes, need supplemental care for a full day, others only for part of the day. This in itself does not distinguish, however, between "day care" and "nursery school", since it is not consistent with other factors in the family situation that are deemed relevant to that distinction. Thus, both low-income and higher-income families may need either a full day or half day service, depending on whether or not the mother is employed and, if employed, whether on a full or part time basis; or, in other situations, on the health and emotional condition of the family. In general, however, it does appear that a strictly educational orientation tends to be associated with a half day rather than a full day facility. Significantly, the Office of Economic Opportunity defines day care on the basis of its availability throughout the day, as follows:

> The differences in function and purpose do have some impact on administrative considerations. Day care centers, usually offer services throughout the whole of the work day and the entire work year. This long-day schedule arises because the center is serving in lieu of the mother who is not able to care for her young children at home. In contrast, the pre-school program usually assumes that the child comes from a home to which he can return during the day. Thus, preschool programs frequently are half-day, morning, or afternoon, although they sometimes coincide with the usual full school day.1)

The O.E.O. states further that "Full encouragement will be given to local communities to develop the kind of facilities which are most appropriate for, and most needed by, the children and families of the community, be they day care centers or centers of early childhood education".2)

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1) Concept of a Child Development Center: Relationship to Preschool and Day Care, Office of Economic Opportunity, Executive Office of the President, Washington, D.C. March 18, 1965, p.2. GSA DC 65-17433.

2) Ibid., p.6.

Because of the ambiguity in distinguishing between day care centers and nursery schools, no such distinction was made for purposes of this project. Preliminary investigation of group care facilities in the Commonwealth of Massachusetts indicated that licensed facilities were quite similar in respect to the age of children served and range of services offered.[1] In addition, both day care centers and nursery schools, with minor exceptions, are subject to the same licensing laws. For purposes of cost analysis, the project adopted a broad definition of day care service to include any facility licensed under State Law which provides group day care (as opposed to family day care) for pre-school children under voluntary, proprietary, or public auspices, except those facilities which deal solely with the problems of the physically or mentally handicapped child. A more detailed discussion of the selection of study sites will be found in Chapter II.

Why Cost Analysis?

Cost analysis is a method for determining the cost of units of service and for describing costs on a functional basis. In recent years, social agencies and funding bodies have become interested in developing cost analysis methods which would enable agencies to price their services and evaluate their programs more realistically. Since units of service, program components, clientele served, administrative auspices, and general organizational framework vary greatly among different social agencies, cost analysis procedures must be modified when applied in different settings. In general, however, cost analysis efforts have been undertaken to assist in furthering the following objectives:

(1) comparison of the costs of agencies that have similar functions;

(2) planning and deployment of resources by a single agency or by a central planning or financing body;

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[1] This does not imply that all centers are actually uniform in their operations, certainly not in any qualitative sense. In later chapters, we shall discuss specific issues of staffing and program that may make for differences in quality and have an effect on costs. The point being made here is merely that such differences are not evident from the stated programs of the centers.

(3) determination of appropriate allocation and reimbursement formulae by public and private funding bodies;

(4) establishment of fees which realistically reflect the services being rendered;

(5) development of budgets and programs around rising costs and increased demands for service.

Cost analysis has been developed in a number of fields such as the visiting nurse service, institutions for children, family social services, group recreational facilities, and the national YMCA's. One of the most widely known cost analysis methods in the field of child welfare was applied to the costs of services in institutions for children. This method was developed in a project directed by Martin Wolins, and sponsored jointly by the Child Welfare League of America and the California State Department of Social Welfare. A manual describing the procedures used was written to enable a large number of children's institutions to adopt the method.1)

The general aims of the cost analysis were stated there as follows:

> The financial data produced by cost analysis can provide an agency with the costs of the various functions it performs. With this information, an agency is in a position to evaluate its activities in terms of their relative costs, to estimate the desirability of purchasing certain services from outside sources, to predict the costs involved in changes of function or of intake policies, and to price its services realistically in computing fees and reimbursements.2)

When the present project was initiated, it was thought that the CWLA method could possibly be adapted to the field of day care. We found, however, that the method was too complex to lend itself to preschool programs, although some of its general cost analysis principles could be utilized.

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1)Martin Wolins, A Manual for Cost Analysis in Institutions for Children, Parts I and II, (New York: Child Welfare League of America, 1962).

2)Ibid, Part I, p. 1.

Other cost analysis studies have been conducted by the Family Service Association of America and the Health and Welfare Council of Metropolitan St. Louis. Detailed information on these studies can be acquired from the respective agencies. Our objective here is to indicate the reasons that have led agencies to undertake cost analyses and the expectations they have had regarding the results.

In an Interim Cost Analysis Manual published as part of a pilot project designed to test the cost analysis method in a variety of member agencies, the Family Service Association of America mentions several reasons for accumulating cost data. Some of the purposes are to enable an agency to: justify its expenditures in terms of its end-products; estimate budgetary needs; acquire a reasonable basis by which to price services rendered to other organizations; determine the future range and emphases of its program; and indicate to the public that it is attempting to operate as efficiently as possible.1)

A report published by the Health and Welfare Council of Metropolitan St. Louis says the following about what was expected from the study of cost and income in children's institutions:

> Generally, it was believed that better information on the financial aspects of institutional care for children could help in providing better services with improved tools for agency administration and budget activities. More specifically, the study was planned to offer the following benefits:
>
> 1. To be of assistance to participating agencies in their internal administration of fiscal matters, with the possibility of indicating trends if similar studies could be conducted by individual agencies from time to time.
>
> 2. To provide a basis for general comparisons among agency operations by developing a uniform method of allocating expenditures to specified and uniformly-defined cost centers.

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1) William B. McCurdy, Interim Cost Analysis Manual, Member Agency Edition, issued in conjunction with the FSAA Pilot Project on Centralized Processing. February, 1964, pp. 4-6.

3. To assist in interpretation of program to agency boards, the United Fund and other funding bodies, and to the community.
4. To provide detailed information on actual costs of services and sources of income as a basis for developing principles of fee-charging to parents and to governmental or other agencies responsible for children under care.1)

When federal funds for day care became available through the 1962 Public Welfare Amendments to the Social Security Act and later through the Office of Economic Opportunity, legislative and public administrative bodies on both the federal and state level became concerned with the problem of developing reliable allocation and reimbursement formulas. Community welfare councils and planning groups interested in planning day care services, and agency executives conducting such programs, also expressed a need for reliable cost data in order to obtain a more accurate basis than now exists for determining budgetary allocations and for setting fees. Discussions at an early stage in this project with various groups in the Boston area and the Commonwealth of Massachusetts that have a role in preschool programs indicated the existence of a wide-spread interest in the development of sound cost analysis tools.

The present attempt to devise a method of cost analysis in day care centers was begun initially under the sponsorship of the Health and Welfare Council of Metropolitan St. Louis. In its application for a research grant from the Children's Bureau dated December 31, 1962, the Council stated that the purpose of its research project was to develop a cost analysis method that could be "uniformly applied" in the St. Louis area and in other communities throughout the country. The difficulty of establishing maximum and minimum fees for day care on a rational basis was recognized as one of the major problems arising from the lack of adequate cost information and "the lack of satisfactory definition of a unit of service."

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1) Cost and Income in Children's Institutions - 1960, Health and Welfare Council of Metropolitan St. Louis, St. Louis, Missouri, October, 1962, pp. i-ii.

In taking over the project, the Florence Heller Graduate School at Brandeis University has pursued the same basic purpose as that conceived by the Health and Welfare Council of Metropolitan St. Louis--to develop and test a method of cost analysis of preschool programs. It was hoped that the method would provide standard cost analysis procedures which could be implemented by interested agencies located in various communities and sections throughout the country and which would produce comparative data. Furthermore, it was hoped that the information obtained from the application of the cost analysis method would make possible the development of sound bases for requesting or granting public or private funds, the establishment of fees which realistically reflect the cost of the various services rendered by an agency, and an evaluation of the costs of various program emphases in relation to functions performed.

Issues in Cost Analysis

The following issues have been faced by project staff in the attempt to devise a method of cost analysis that would produce comparative data:

1. The development of a unit of measure that most appropriately reflects the purposes of preschool programs and that would permit a comparison of costs among agencies.
2. The development of a functional accounting system based on the program components common to preschool settings.
3. The development of a standard procedure for the allocation of objects of expenditure into the appropriate functional categories.
4. The development and implementation of a time analysis that would permit the accurate translation of salary items into functional categories.
5. The determination of a basis for treating donated goods and services in cost calculations.
6. The determination of a method for treating staff over-time and personal activities in cost calculations.

7. The effect on costs of the socio-economic background of the clientele served, the quality of the program, the length of the school day, and differing administrative auspices.
8. The effect on costs of the rate of utilization of existing facilities and the degree to which a program operates at capacity.

Cost analysis concerns itself with quantitative and not qualitative measures, and does not presume to set standards. There is no evidence that high unit costs necessarily reflect a good program or that low unit costs necessarily reflect a poor one. Although this may be true in some instances, costs do not in themselves demonstrate effectiveness, economy or efficiency. For example, a preschool program with the highest educational cost per child does not necessarily provide the best educational service in terms of the intellectual, social, and physical development of the children. Furthermore, in assessing the costs within an individual program, the service that is most costly is not necessarily the one that most benefits the children. The Family Service Association of America has the following to say regarding this issue of quantitative versus qualitative data:

> In using time and cost data, it is essential to keep in mind that quantitative measures--not qualitative measures--are involved in (cost analysis). These quantitative data may yield some clues which, when pursued, will have a bearing on quality. The cost of a service, however, is not a direct measure of its quality. Similarly, time data will describe the current use of staff time; they will not, in themselves, indicate whether this use of time is the appropriate one.1)

In the cost analysis developed for institutions for children, the Child Welfare League also indicates that efficiency cannot be measured on the basis of the results of the analysis. Referring to its own method, the League says:

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1) McCurdy, op. cit., p.7.

> This cost analysis does not measure economy of operation within an agency. It does, however, provide the total cost of agency programs and services, and these can be measured against the cost of similar programs and services elsewhere..... But the cost analysis does not in itself answer the question of whether an agency is spending "too much" or "too little" on these items.[1]

Detailed discussions of the issues involved in formulating the present cost analysis method, the steps taken to resolve them, and an evaluation of the final product are contained in the following chapters.

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[1] Wolins, *op. cit.*, Part I, p.5.

CHAPTER II - METHODOLOGY

In developing a method for analysis of costs in day care centers, the methodology employed was to select a group of representative centers in the Boston area and to use these as a testing ground for that purpose. This chapter will describe the procedures that were followed and the reasons for various decisions that were made as the project developed. The presentation will be divided into three sections:

1. Selection of centers and methods of working with them.
2. Methods of allocating costs.
3. Methods of studying staff use of time.

1. Selection of Centers

A rather extensive exploratory period preceded the selection of six centers in which the cost analysis was finally made. Upon the initiation of the project in June, 1963, the staff undertook a series of conferences with the officials of major agencies responsible for day care services in the Commonwealth of Massachusetts, in order to obtain help in selecting suitable centers for study. The following agencies were consulted:

a. The Department of Public Health which has responsibility for licensing day care centers.

b. The Department of Public Welfare which is responsible for the development of day care services in response to the 1962 Public Welfare Amendments of the Social Security Act.

c. The Associated Day Care Services of Metropolitan Boston which is a non-profit co-ordinating agency with six affiliated centers.

d. The Massachusetts Private Pre-School Association which is a membership organization of operators of proprietary or commercial day care centers.

e. Staff members of Eliot Pearson School of Tufts University.

In selecting a sample of centers, a major purpose was to find examples of important variations that might have a bearing on cost. One of the purposes of the consultations with experts was, therefore, to identify what the significant sources of variation might be. Originally, it had been thought that a major variation would be found in the range of services provided by the several centers, and in the age level of children served. Since the project made an early decision to confine itself to agencies which could be observed directly by the staff, it was limited to the variations found within the geographical area of Greater Boston. In Massachusetts, day care centers do not vary significantly in the age group served, which is from three to seven years, with only a few taking children slightly below three years of age.

Variations in program are somewhat more difficult to measure. It was clear, however, that no sharp distinction could be made between nursery school and day care types of programs, since all centers at least claimed to offer educational as well as child caring services. While details of activities and certainly quality of program might differ widely, the only difference in range of services provided that could be identified _a priori_ was whether or not a social worker was included in the center staff.

There were, however, three variables which might be presumed to have an impact on costs and wherein existing centers did indeed differ. These became the major criteria for selection of centers for the study. They were: _auspices_, _size_, and whether they were _full day_ or _half day_ programs.

On the basis of these criteria, the staff, with the help of the agencies consulted, drew up a list of 22 centers as the potential group from which a sample could be selected. The impressions of knowledgeable people were drawn upon to make sure that this list included variations, not only in the major criteria listed above, but in the socio-economic status of the clientele, and in the general reputation of the centers as to standards of performance. Without having any precise way of making qualitative judgments, the Project staff did not want to be limited to centers that were generally recognized as outstanding examples of good service, but wanted to obtain a cross-section of types of programs actually available in the community.

Exploratory visits were made to all of these centers with several purposes in mind:

a. To help the staff become more acquainted with the center and its suitability for inclusion in the study;

b. To explore the interest of the center in participating;

c. To learn more, in detail, about the activities conducted within a center, as a guide to the functional analysis of costs.

The findings from these visits were compiled in a chart which identified each of the centers in relation to a number of variables, particularly those mentioned above. One other limiting factor that came to the attention of the staff during the exploratory visits was the difference among centers in the adequacy of their administrative organization and record keeping. A number had to be eliminated because their systems were so inadequate that there would have been no chance of obtaining the data on costs required for analysis.

After analysis of the material obtained in the preliminary visits, as well as calculation of the staff time that was available, it was decided to conduct the cost analysis in six centers. This number would provide variation in auspices, size, length of program, and socio-economic level. They would thus be illustrative of the range of variation which had been identified as possibly of relevance to costs.

With one exception, the centers chosen on this basis agreed to participate. In the case of the one that refused, an alternate was chosen which had similar characteristics.

Detailed information concerning the six facilities included in the study will be found in Chapter III. They were evenly divided between full day and half day programs, with one of the latter conducting two half day sessions each day, for different groups of children. All were non-profit centers, except for one of the full day programs, which was proprietary. Another of the full day programs was part of an association of day care centers, which meant that some of its services and administrative overhead were provided by the central office of the association rather than directly. Two of the half day programs were part of larger organizations-- one a Jewish Community Center, and the other a university. All of the full day programs served a low-income population; all of the half day programs served a middle-class population.

In general, the relationships between the Project staff and the centers proceeded smoothly, although some problems were encountered which are worth reporting for the use of others who may follow similar procedures. There was favorable receptivity to the Project and its auspices among most of the centers approached. They shared a concern with costs as a problem in the field of day care service and were interested in helping to find ways of analyzing costs. Some had special individual interests that they felt could be furthered by participation, mostly in terms of public relations.

However, this acceptance was not universal, and it was necessary for the Project staff, in some instances, to overcome resistance. The resistance was due, for the most part, to concern that the Project would impose additional burdens upon already overburdened center personnel. This was indeed a valid concern, since the time study does make demands on staff time. Assurances were given, and provisions made in the staffing of the Project, to minimize the clerical and accounting problems for center staffs and to have these assumed by the Project itself. A statement was developed by the staff and distributed to the cooperating centers, setting out the responsibilities that would be assumed, respectively, by the Project, and the participating centers. (See Appendix I). This statment also included assurance that the centers would not be put to an additional expense, but that all costs would be borne by the Project budget.

It is inevitable that there must be some uneasiness about an inquiry into costs and operations, since there is always implicit in such an inquiry the suggestion that an evaluation is being made. This, together with reluctance to share information considered private, must be expected as a source of resistance to any agency that will seek to make cost analyses. One of the centers included in the study did refuse direct access to its books but provided the information requested. The least satisfactory experience occurred with the proprietary center which promised cooperation but failed to respond to repeated requests for information and never supplied all that was needed. However, this may have been related to the inadequate administrative set-up of that center rather than to unwillingness to cooperate.

It should be noted that even where there was basic acceptance of the Project and genuine cooperation, the conduct of the time study proved a definite burden to the center personnel.

2. Methods of Allocating Costs

The conduct of a cost analysis involved three types of processes:

1. The determination of a unit cost in relation to some meaningful unit of activity or of outcome in the operation of the enterprise;
2. The determination of functional components of the cost so that the different items of cost can be analyzed and evaluated;
3. The assignment of particular items of cost to the

categories or components that have been decided upon
under (2).

The cost analysis which was undertaken for the day care centers in this study was based on an attempt to develop a functional categorization of costs. The meaningful functions were determined by a survey of expert opinion and consultation with people knowledgeable in the field and by a review of the literature. This led to identification of the issues that are of interest to agencies financing day care programs as well as to those operating them. A set of tentative categories was formulated and then tested directly in the day care centers by a two week trial time analysis to be described later in this chapter.

It should be considered an open question whether a functional categorization of the cost of day care is necessary and/or desirable; and if so, how detailed and extensive such a functional breakdown should be. These are issues which will be discussed in later chapters when the actual results of the studies are presented, together with their implications and the recommendations derived from experience with the method. At this point, we shall merely indicate the procedures which were followed and the reasons for them, once the decision had been made to do a functional cost analysis in order to test its usefulness.

In this phase of the study, consultation was obtained from Peat, Marwick, Mitchell and Company, an outstanding accounting firm which has wide experience nationally and internationally in dealing with problems of cost accounting, and special competence in handling such problems in non-profit agencies such as hospitals, universities, and health and welfare services. This accounting firm has recently completed the development of a chart of accounts and proposals for a uniform accounting system for non-profit agencies under the auspices of the National Social Welfare Assembly. A member of the firm's Boston office was assigned to the Project and consultative services were provided by the

New York Office (See Appendix II).

The accountant, together with members of the Project staff assigned to the respective centers, negotiated the necessary agreements and procedures with each of the centers included in the study. One of the criteria for including a center in the study was the existence of a bookkeeping system meeting at least minimum standards of orderly procedure. The most marginal of the included centers just barely met this criterion and some of the data obtained from that center are of questionable validity. With this exception, however, the bookkeeping and office procedures followed by the centers were adequate and the work involved for the accountant in obtaining the necessary data for purposes of the cost analysis did not prove to be excessive; nor was there excessive disruption by the accountant and the Project of the normal procedures followed in the respective centers. Two types of general modifications were necessary:

1. Since the cost analysis was based on the calendar year, the centers which maintained their accounts on a different basis (usually the school year) were helped to reorganize their record keeping for purposes of the Project. This was accomplished by obtaining monthly records of expenditures.
2. In order to achieve comparability between centers, it was necessary to establish comparable categories in which similar expenditures could be posted and recorded. To the maximum possible extent, use was made of the categories already employed by the centers and expenditures under these categories were fitted into the functional scheme established by the Project. In some instances, however, it was necessary to reclassify expenditures in order to achieve comparability. This was done directly by the accountant who was furnished by the center with the invoices and who made the appropriate categorization.

In general, these procedures worked out smoothly with only a minimum of problems encountered. The major difficulties were with the most marginal operation, where records were extremely confused and outside auditing negligible, and where it proved impossible to establish truly effective communication between the Project's accountant and the person responsible for maintaining the books of the center. In one other instance there was a reluctance on the part of the center to permit the Project's accountant to work directly with its books. However, in this case the center's own bookkeeping procedures were quite competent and information was furnished to the Project in a satisfactory manner.

In consultation with the accounting firm, the Project staff had to make a number of decisions involving the way in which different items of expenditure were to be calculated. The results and implications of these decisions will be described in subsequent chapters dealing with findings and recommendations. At this point, the following general summary will help to identify major issues that are bound to arise for anyone who may attempt in the future to undertake a cost analysis in this field.

All expenditures can be divided into two general types: a) salaries, and b) non-salary expense items. The problem of analysis involves assigning both salary and non-salary items to functional categories.

Some items of both salary and non-salary expenditures are clearly classifiable immediately and totally to a particular function. Thus, the entire salary of a cook (if that is all she does) as well as the total cost of the food can be assigned immediately to a category of food service, if that is all in which we are interested. However, if we are not satisfied that food service is in itself a meaningful item but are interested in a breakdown, for example, between the cost of food for children and the cost of food for staff, then further analysis becomes necessary. The general principle for making the analysis was to assign to the functional category those items of salary and non-salary expenditures that were totally within that category. For those that cut across more than one category, other devices had to be employed.

Salaries of personnel performing more than one function were divided on the basis of the total distribution of time as revealed in a time study of these staff members.

Another basis for the distribution of costs was the calculation of the utilization of space for different purposes. The total amount of space occupied by the center was measured and the proportionate amount of space used for different functions, such as a kitchen being used for nutrition and a playroom for educational purposes, etc., was assigned to the particular function. A number of items of expenditure could then be divided among functions in accordance with this space distribution scheme. This was true, for example, of cleaning and maintenance expenses.

The non-salary items were treated in one of two ways, depending upon the nature of the item. If they were items related to the functioning of specific staff members, they were distributed in accordance with the functional distribution of the time of those staff members. If they were items not related to a particular staff member or to particular functions but involved the total operation of the center (as for example, cleaning and maintenance expenses) they were divided on the basis of the utilization of space in the center for various purposes.

Considerable attention was given to ways in which account might be taken of services and goods contributed to day care centers for which there are no items of cash expenditure. This is a peculiar problem in the accounting of non-profit agencies and is a factor of some concern in day care centers. A major item is the work of student teachers. Many preschool services offer training opportunities for nursery school teachers and, to a lesser extent, to students in other disciplines. There are no cash expenditures for such personnel although they are contributing a service to the agency. The same problem arises in the use of volunteer help of various kinds. Parents, for example, frequently contribute services to a day care center without obtaining cash reinbursement.

A variety of approaches were considered to this problem. An examination was made of the possibility of imputing the costs for such contributed service--in other words, calculating what an appropriate cost would be if the center actually had to pay for the services obtained. However, it proved very hard to do this and the effort was finally abandoned. One of the questions is whether the contributed service is actually essential to the operation of the center or whether it is an additional type of activity which is available because it does not involve any costs, but which would not be taking place if there were a cash cost involved. To the extent that centers may differ in this regard, the imputation of a cost to a contributed service would be a source of non-comparability between centers. Another problem is how to find a fair basis for calculating the cost of a contributed service. What is an hour of time provided by a parent or a student teacher actually worth, and can it be assigned the same monetary value in different centers?

After reviewing the different types of contributed services being provided in the centers included in this study, it was decided in accordance with the advice provided by the accounting consultants that no attempt should be made to impute costs, but that the analysis should deal only with actual expenditures. The accounting consultants gave this advice not only on the basis of the findings of this study, but on the strength of their general experience in dealing with non-profit agencies where contributed services are frequently found. Their exploration of this issue in many other settings has led them to the conclusion that no adequate basis exists for imputing these costs in a way that will make for comparability between agencies.

In regard to the day care centers included in this particular study, this problem applies primarily to student teachers. Where student teachers are used, some portion of expense is devoted to the category of training and the time analysis reflects this fact. Training is thus shown as an element of cost. It must be assumed that this cost is offset at least in part by the additional service provided to the center through the student teachers, for which no cost is reflected.

Similar to the problem of contributed services is the issue of contributed goods. Various types of goods such as furniture, food, etc. may be contributed to the centers from time to time by parents, friends and other supporters. Such contributions are usually intermittent, irregular and hard to anticipate and, therefore, not normally encompassable within regularized budgetary and program planning. The same reasoning that led to the elimination of contributed services from the cost analysis led to a similar decision to eliminate contributed goods. The one exception is the surplus food provided by the United States Government to all educational institutions,and day care centers as well. The value of such surplus foods was included in the cost analysis as an addition to the cash expenditures for food. This could be done very easily because the value of the surplus foods is known,and the calculation of this value is applied uniformily from one center to the other.

We have discussed earlier the use of space measurements and their assignments to different functions as one of the bases for the assignment of different items of cost to the functional categories. This procedure posed some special problems in those three centers where the day care operation was a part of a larger organizational structure -- namely, University, Center, and Association. As will be indicated in later chapters, those centers which are located in larger organizational units tend to have higher costs than those which are more self-contained, when account is taken of the indirect costs incurred on their behalf by the larger organizational units. Despite this differential, it does not seem valid to ignore the existence of these indirect costs since they represent a very substantial contribution to the functioning of the center. In some instances, as in the case of Association, the additional costs represent elements of program and personnel service that may be completely absent from other centers. In other words, sometimes the costs incurred by the larger organizational units are for special services that they provide which are different either in kind or in degree from those available to centers that do not have such sponsorship. More frequently, however, the larger organizational unit is incurring a cost which would be part of the normal costs of the center if it were self-contained. In the report of the findings, details will be given of the situation in each center so that it will be possible for readers of this report to see concretely what types of services are provided by a sponsoring organization and to reach a judgment as to the validity of including such charges in the normal cost of operations of a day care center.

One of the most difficult issues that had to be resolved was the difference among centers in regard to the cost of their facilities. There are two aspects to this problem. One involves the cost of operating and maintaining a facility. This is less complex than the problem of determining the cost of the facility itself. The operation of a facility involves such costs as maintenance, repairs, utilities, etc. These are the usual costs of operating any kind of building except for rent itself. It was possible to arrive at reasonably comparable definitions concerning these operating costs, and they were therefore included in the cost analysis.

The situation was quite different, however, in regard to the cost of the facility itself. Were all buildings in which day care centers are housed subject to a uniform market situation, some comparable basis for determining the costs might be obtained. As a matter of fact, however, no such basis exists. A major source of non-comparability is that some of the buildings are rented whereas others are owned by the day care center itself or by the sponsoring organization which provides its housing. To have included a rental figure in the costs of those centers that actually pay rent would reflect the total costs of those centers as they are operating today; but this introduces a serious factor of non-comparability with centers that do not actually pay rent. In order to achieve comparability, it would therefore be necessary to include in the costs of those centers which do not pay rent some estimate of a fair charge for occupancy of the facilities in which they are conducting their program.

Various approaches to this problem were attempted in consultation with the accountants. An attempt was made to obtain information from all of the centers as to the original cost of the building in which they were housed, with a view toward dividing this cost over the normal life time of the building and thus including a theoretical figure of what a fair charge for the use of the building might be. This effort was finally abandoned because complete information could not be obtained in a satisfactory manner and also because the original cost of the building did not seem either a comparable or a fair basis for making this calculation. It is obvious, especially in connection with buildings that are not quite old, that the original cost bears no relationship whatsoever to the present replacement costs of a facility and that this basis would therefore provide a serious understatement of current market values of a building of this type.

For purposes of this study, the final decision was to calculate costs without including the cost of the building either on a rental or an ownership basis. For purposes of applying cost analysis to the actual payment of fees or subsidies to a day care center, the costs of building cannot be excluded. In interpreting the findings of this study, this limitation should be kept in mind.

Budgeting and financing agencies faced with this problem will need to decide whether to pay actual costs, in which case no account would be taken of the cost of investing in the building for those that may have ownership of their facilities, or to establish a fair value for the building to be applied regardless of the particular ownership situation in any given case. The latter approach would, of course, require some rational criteria for establishing a market value for a given size and type of building.

A summary of the general decisions made in regard to the allocation of costs appears in Appendix III.

Unit Costs

The final product of a cost analysis is the identification of a unit of cost in some meaningful terms that are related to program. In a profit making business, the ultimate measure of costs is translated into a price for a particular unit of the product. The identification of a product is more difficult in non-profit service agencies.

The service provided by a day care center is ultimately a total service to a child. That service is made up of the various activities provided by the center--i.e., education, physical care, nutrition, transportation (if that is included), etc. It is, therefore, meaningful to translate gross expenditures into units of cost related to each child served. This can be done in several ways.

To begin with, it is possible to state the cost incurred by each of the centers for each of the children that it has served in the course of a year. This is accomplished very simply by dividing the gross expenditures by the total unduplicated number of children enrolled in the center during the course of the year, assuming that all of them are enrolled for the entire year. However, there are further refinements of the unit cost which help us gain greater understanding of the situation, since they take account of the differences between the centers thay may have an effect upon costs. The major difference between centers is the length of the school day--i.e., some are open for a full day, others for only a half day. The service given to a child in the course of a year is, therefore, greater in total volume for children who attend for a full day rather than for a half day. Because of this, it was decided to analyze separately the full day and half day centers, in order to see if these two types of programs differed along any of the other dimensions that were of interest to the study. In the material that follows, therefore, cost calculations in full day and half day centers will be presented separately.

Another source of variation among centers is in the number of days that they function in the course of a year. The major factor in this connection is whether the center operates for a full twelve months of the year or whether it operates only for the usual school year of ten months. In order to take account of this source of non-comparability, a calculation of unit costs was made on the basis not only of the number of children served, but also the number of days service was provided. This results in a unit cost per child per day (or stated more accurately, per full day or per half day, depending upon which center is being analyzed).

Since there is also variation in the length of each school day (i.e., in the number of hours service is provided each day), it is possible to make an additional calculation which results in a unit cost per child hour of service.

All of these calculations have been made and will be interpreted in the subsequent material. Each analysis provides some additional data,not only as to the nature of the costs but as to the sources of variation among them.

3. Methods of Studying Staff Use of Time

Most of the costs in a day care center are costs of personnel. In the centers studied by this Project, personnel costs accounted for from 61% to 82% of the total. A major aspect of the cost analysis is, therefore, the assignment of personnel costs to functions.

Once the functional categories are determined, it would be possible to make this assignment, if each item of personnel costs could be placed into one of the categories. The problem that arises, however, is that not all personnel can be assigned automatically in this way. In a day care center, the most important problematic issue is the function of the teachers, who constitute most of the personnel. One of the reasons that led to this study is the lack of clarity as to how the activities of teachers should be classified, and what proportions of the costs should be assigned to which categories. It was to get at this problem of multi-functional activities on the part of teachers and other professional personnel that the Project undertook to use a time study as a major element in its cost analysis.

The first step in the process, and the precondition for launching the time analysis, was the development of the functional categories. This was done initially by the staff on the basis of review of the literature concerning day care, consultations with experts in the field, both nationally and in Massachusetts, and the exploratory visits to the larger group of centers from which the sample was drawn.

The Time Analysis Manual which accompanies this report sets forth the funtional categories in detail, together with definitions and examples of the activities that belong in each. Since much of the analysis which follows will be built around the major Program Activity Groups, it will be useful to list them here:

A - Admission Process
B - Transportation
C - Parent Counseling
D - Child Care Service
E - Nutritional Service
F - Health Service
G - Educational Service
H - Parent Group Activities
I - Student Training
J - Study Activities
K - Community Activities
Q - Administrative Activity Group

The classification scheme was drafted and reviewed several times. An initial draft was submitted to the centers in the study sample and their comments used as a basis for revision. It was then tested in a very painstaking way during a two week period which was used as a trial run both for the classification scheme and for the mechanical procedures involved in doing the actual time study. Changes in the classification scheme were made following this pretest.

It will be noted that the classification scheme is based on the purpose of the activity. Within each of these program activity categories there was a list of the specific activities, each of which had a code number. These are all set forth in the Manual. The specific items of activity serve to help define and identify which types of action belong in which program activity group. It was thought that clues to variations in cost, as well as some information useful for internal managerial purposes, might be derived from this kind of analysis. In and of themselves, however, the specific activities did not prove useful for cost analysis purposes because the activities are too specific and detailed. It was rather the program activity groups based on the purpose of the action which proved meaningful in providing a basis for a functional analysis of the way in which time is spent in a day care center.

The problem of classification is a conceptual one which was solved in this case on the basis of the statements of the practitioners in explaining the intent of their actions. There are, however, two types of problems which are of a more technical and procedural nature. These are problems of a)coding, and b)sampling. These will be discussed in turn.

If the problem of classification is one of validity, the problem of coding is essentially one of reliability. In other words, the question that needs an answer is how best to guarantee that a given activity will be coded in the same way by different observers. The listing of specific activities was developed in order to increase reliability. There are, however, a number of problems which arose and which the Project staff tried to resolve during the two week trial period.

One major problem was the "phasing" of activities. Any activity has several stages to it, and since time runs in a continuous stream, it is sometimes hard to judge where one activity ends and another begins. This issue was resolved by coding the action in relation to the activity being completed rather than to the new one being initiated.

Although steps were taken to increase reliability of coding, a test of reliability was not performed. For most of the random day study period a procedure of supervision was used in order to check upon the codes assigned by the observers. This was done by instructing the observers to provide a written description of the activity,rather than simply to report the code. The Project staff member responsible for supervision could then review the activity, ask whatever additional questions were necessary in order to enlarge the description, and then assign a proper code.

The major coding problems occurred not in the major classifications listed on Page 30, but in deciding whether a specific action should be described in one or another of the listings of specific activities within the major category. Some inconsistency was known to have existed among the Project staff in their ways of handling various items, and not all of these were resolved. There was some inconsistency in the determination of whether certain observations should receive a program code or be categorized as administration, and a general tendency to list a clerical action as administration rather than to classify it in terms of its program purpose. There was also some failure to report, observers missing rounds on occasion.

While the precise volume of coding error cannot be known, it is the staff's general impression that the errors were relatively minor in regard to classification within major functional categories, which are the only categories being used for the cost analysis.

Sampling

We turn now to the issue of sampling which is one of the fundamental problems in conducting a time study. Consultation on sampling procedures was obtained from Dr. Robert Reed, head of the Department of Biostatistics at the School of Public Health at Harvard University.

The sampling problem is to find a number of observations which will adequately represent the total universe of activity performed by the staff of the centers. Assuming that there might be non-random variations in activity by season of the year, month, day of the week, time of the day, etc. a sampling plan was sought which would provide a random sampling of these different time elements in an unbiased manner and, therefore, permit a generalization to the total activities of a center over a full school year. The time study was conducted from October 1, 1964, through May, 1965. It did not include summer months of operation for two of the centers that function year-round.

One of the criteria in sampling is the factor of cost. If there were no issue of feasibility--if there were no limitations of time, cost, etc.--then sampling would not be necessary. One could at the extreme observe the total flow of activity for an entire one year period. This obviously is not feasible both because the cost is prohibitive and because the staff of a center would find it difficult to tolerate this much intrusion into its activities. The problem is to find an optimum sample size which will be feasible of achievement and yet provide a set of data from which it would be possible to generalize reliably for the distribution of work activity during the entire year.

The initial approach to the sampling problem was to try what has been described as the "random moment" approach. This was an attempt to obtain a record of staff activity at randomly selected moments during each day of the period being studied.

The random moment approach required that there be an observer at the center each day, which means that the observer had to be a member of the center staff who, at the random moment, would make a round, observe all of the designated personnel of the center, fill out a card for each person observed, and code his activity.

The random moment approach proved not to be feasible. It became obvious even during the two week trial period of the time analysis that it could succeed only with a very capable and motivated observer in the center staff. Because of lack of ability on the part of clerical staff, pressure of other duties, and staff turnover, the random moment approach was gradually abandoned in all centers except for University School. Even there, it could not be done easily by the school staff itself. Initially, an arrangement was made whereby Project staff was to call the school at the random moments which occured after the school clerk had left for the day (during a period of three hours). There were a significant number of times when Project staff forgot to make the call, and the final arrangement agreed upon was to have the school clerk check with staff the following morning and then to code retroactively.

The only place where the random moment procedure continued successfully and without alteration throughout the life span of the study was in the central office of Association School, where a highly competent and conscientious secretary, a long-term employee, was in charge.

Recognizing that the original plan could not be carried out, a sampling plan known as "random day" was substituted--first as an additional method to protect against the potential errors in the random moment approach and to provide a reliability check on coding, but gradually as the prevailing sampling device. In this approach, ten days were chosen at random, each day of the week being represented twice. Morning and afternoon sessions were handled separately, each being assigned a block of approximately four hours. Within each block, a starting moment was chosen randomly and observations then made at 19 minute intervals. This yielded an average of 9 to 11 rounds each of the random observation days for a half day program, and 13 to 17 rounds for a full day program (See Appendix IV).

The random day approach made it possible for the Project to furnish its own observers, thus eliminating its dependency on the personnel of the centers. These observers were supervised by Project staff, who thus had better control over the coding procedures.

Further details as to the sampling procedure and sampling errors will be found in Appendix V and Appendix VI. One further sampling issue should be noted. Each of the centers has staff in a number of different categories, and the size of the total staff in most of the centers is relatively small. This means that there are some categories such as directors, for example, in which there is only one person in each center. The problem here was to make enough observations so as to be able to make statements not only about the staff as a whole but about the way in which particular categories of staff people spend their time. A sample size which would contain enough observations to characterize the division of work of the total staff taken as a unit might not be enough to describe the work of a particular employee group, such as teachers, for example, within the limits of the sampling error that had been selected. On the other hand, an attempt to obtain enough observations in order to be able to characterize each of the staff positions individually would lead to an increase in the volume of activity which would cause disruption and an unacceptable amount of difficulty for the centers.

Because of this dilemma a compromise was reached. The size of the sample was determined on the basis of the teaching staff in each of the centers. Where a center was very small, the teachers had to be augmented with teaching assistants and in two cases with the director who also carries part of the teaching load. In a center, therefore, the size of the sample is based on the size of the core teaching staff and is reasonably adequate to represent the total activities of that staff within a sampling error of approximately .03 to .05. However, the sample size is not adequate to generalize the activities of a particular employee or employee group not included in this core (such as director or social worker) within the same margin of sampling error.

In calculating costs, the time study has been applied to the activities of the total staff without differentiating between the core group on which the size of the sample was based and the other employees. The sample size is adequate to permit this kind of calculation within the margin of error established. It is, however, less adequate as an estimate of some of the specific positions. Comments in subsequent chapters relating to employee groups are, therefore, subject to greater sampling error than comments referring to the use of staff time as a whole.

Another major issue which arose in conducting the time analysis was the problem of how to record time spent on work related to a day care center in hours which were not an official part of the working day. This was felt to be an important matter by experts in the field since there is a general impression that work related to the activities of the day care centers is frequently done by staff members outside of regular hours. This is presumably true particularly of staff people in administrative positions.

An attempt was made to deal with this issue by developing a form which would make it possible for staff people to record their own activity. During the random days that were selected for the time study, such forms were distributed to the personnel, and they were asked to record the time they had spent on matters related to the work of the center. In one instance, the administrator requested that calls be made to him at the random times after hours.

It turned out in the course of experimenting with these methods that the difficulties were too great to make the results worthwhile, and it was finally decided to abandon any attempt to record activity taking place outside of regular working hours. One of the issues was how to calculate the total amount of time to which the information obtained should be related as a base. Should the total base time be calculated as up to ten o'clock in the evening, or up to midnight, or beyond? More important, however, was the fact that practically no after hours work activity was reported, and this, therefore, seemed to be a rather negligible factor in the calculation of time spent on agency business. It was, therefore, ignored in calculating costs.

A related question is the recording of activity which occurs during the working day but not on the premises of the center itself. For example, if a staff member is attending a meeting elsewhere or is transporting a child, this activity is properly part of the time study analysis but is not within the observation of the person recording the activity at that particular moment. This problem was handled by having the observer check with the staff member at the earliest opportunity to find out what was being done at the random moment. Though follow-up on this aspect was poor, activity off the premises was included in the tabulations whenever information was available.

The recording of activity for personnel involved in administration posed a number of special problems. The general question is whether administration should be looked upon as a separate activity or as a means of facilitating the activities represented in the functional breakdown. In other words, when an administrator is supervising a teacher concerning the conduct of the educational work in the center, this activity is both administrative and educational. Since the purpose of the time analysis is to facilitate the classification of activities into their functional categories as completely as possible, the labeling of such activity only as administrative would not fulfill this objective completely. The development of the Manual took account of this question and codes were developed in order to provide a functional breakdown of administrative activity. Two methods were used to calculate "Q" activity --i.e. administration. What became known as "maximal Q" was a recording of administrative activity under the category of administration without breaking it down into its functional components. On the other hand, "minimal Q" referred to a category of administration which was residual in nature--that is, those administrative activities which could not be assigned to one or another of the functional categories. As a matter of fact, it turned out that most administrative activity was not related directly to a program function, so that there was little need to use the program codes in categorizing an administrative action. The use of "minimal Q" is recommended in the Time Manual.

A special problem in connection with recording administrative activities occurred in two settings where the center was part of a larger organizational unit. This was the case at Association Center, which was one of several centers affiliated with an association of day care centers and at Center School which was, in effect, a department of a Jewish Community Center. A number of issues involving the charging of costs in these two centers (and also at University) have to do with such matters as maintenance and other elements of overhead costs. In regard to the time study itself, the problem which arose was the need to record the time of certain personnel who were not directly staff members of the day care centers being studied, but who devoted a portion of their time to the program of the center. This was true of the administrator of the association of day care centers, as well as the social worker and other consultants on that staff who divided their time among the various centers affiliated with the association. It was also true of the executive director of the Jewish Community Center who devoted a portion of his time to supervise the director of the nursery school.

Persons in these administrative and consulting positions were included in the time study. A special code, however, was developed for their activities. This code distinguished among three types of activities that might be observed:

a) Those which were directly related to the work of the center and which should be entirely charged to the center.

b) Those which involved activities from which the center benefitted along with other units in the organization (and which, therefore, should be charged in part to the center).

c) Those which were related completely to other aspects of the staff member's responsibility and which had no bearing either directly or indirectly on the work of the day care center being studied. These were considered "Out of Scope" activities, and no charge was made to the center.

The day care center was, therefore, charged only for that portion of salary which could be attributed to the center either directly or indirectly, as determined by the findings of the time analysis.

The final category established in the time analysis was one labeled "personal activities". It is recognized that not every second of time in the working day is taken up in direct work activity. This does not mean to say that all activity which is not strictly and directly of a working character is waste activity. Much of it involves a necessary pause in an occupation as determined by the nature of the activity as, for example, when a teacher may be standing by waiting for a child to take off his jacket. Some of it is actually built into the schedule, such as rest periods. Some time is lost because of natural vicissitudes, such as illness or personal emergencies. All of these and other types of activity fell into this general and heterogeneous group which was labeled "personal activity", and for which a special code was established.

This category was handled in two ways. Observations were made of such activity, and it was coded accordingly. There is thus a record of the proportion of total time which is taken up in such miscellaneous activity. Once this was done, the amount of time so recorded was redistributed among the other functional activities in accordance with the percentage breakdown of time that had been found to exist among these categories. The reason for this was to make the functional analysis as comprehensive as possible, and thus to act on the arbitrary assumption that time used in personal activity not directly related to any particular function could be considered a proportionate charge on the functional categories, in accordance with the extent to which they account for time that can be classified by such functions. The same principle, of redistributing residual unclassifiable categories on the basis of distributions found to exist among activities or costs where functions could be assigned directly, is one that has been applied in both the time analysis and the cost analysis throughout the study.

CHAPTER III - FINDINGS: COST ANALYSIS

The primary responsibility of this research project has been to develop and test a method for analyzing the costs of day care programs on a comparable basis. The reasons that this was felt to be desirable or necessary have been discussed in the first chapter. The methodology actually developed and used was discussed in the preceding chapter; the evaluation of this method and recommendations about its further use will be the subject of the final chapter. These next chapters deal with the data obtained from testing the method developed. These findings are a natural by-product of the study, though not its major focus. The usefulness of these findings will provide a measure of the general utility of this cost analysis procedure.

The discussion of findings will be divided into the following chapters: Chapter III, findings based on the cost analysis, including descriptions of the schools studied, and problems of comparability; Chapter IV, findings based on the time analysis; and Chapter V, cost of programs in relation to other factors, including socio-economic differences among families.

A. DESCRIPTION OF PROGRAMS STUDIED

For purposes of description and analysis the six centers included in this study have been divided into two groups, depending upon the length of their day. These two groups are: full day programs and half day programs.

FULL DAY PROGRAMS

MILLTOWN: The nursery program is conducted in a spacious, substantially built, but very old building (19th century) in the midst of the city's industrial section..

The school is a non-profit, voluntary organization which gets about one-third of its operating budget from the local United Fund. It was founded by a group of private citizens in 1885 and incorporated in 1889.

For the most part, the children come from working class families where both parents work. The school, therefore, is open every weekday from 7:30 a.m. to 5:15 p.m. and does not close during the usual school vacation periods except for two weeks during the summer, in order to accommodate the work schedules of parents. Not all children, of course, attend for the full day.

About 50 children were enrolled in 1964 and there was an average daily attendance of 40. In addition to the teaching personnel which included two teachers and four assistants, there was a full-time director, a half-time social worker, a secretary, a housekeeper, a cook, and a part-time maintenance man on the staff. The agency is run by a Board of Directors consisting of 18 members who serve voluntarily.

Some children come as the result of agency or some other professional referral, most come directly through parent application. An intake interview with the social worker is required in order to evaluate the family's needs, the child's needs, and the family budget. The social worker felt that most of her time was taken up with establishing fee schedules. The average fee paid is $5 per week.

There is a large outdoor play area with varied equipment. The classrooms are large, light and airy and include a wide range of work and play materials. Furniture in the classrooms and dining room, plumbing fixtures in the bathrooms are all child size and each child has his own folding cot for the afternoon rest period. A hot lunch is served every day.

Staff meetings are held once a month and case conferences as needed. The director is currently going to school on a part-time basis, studying for a graduate degree and the agency is giving her time off for this purpose.

ASSOCIATION:

This is a non-profit private agency which harks back to the early history of early childhood education and nursery school training, and now is a member of a federation of Day Care Centers, supported by Red Feather funds. The school has been located in recent years in a building which also houses a city health unit, but since the school occupied the third and fourth floors of the building-contrary to the Massachusetts regulations for the licensing of nursery facilities--its license has been revoked for the current school year (1965-1966) until it can be relocated.

Most of the children enrolled during 1964-1965 were from low income Negro families living in the several housing projects in the general neighborhood. Officially the school is open from 8:00 a.m. to 5:00 p.m., but most of the children arrive about 9 o'clock and are gone by 4 o'clock. The working hours of the staff seem to be flexible and staggered so that not every teacher comes in first thing in the morning or stays until the last child has left every day. The school activities are routinely supplemented by staff supplied by the central office. A social work supervisor, early child educator, and a nutritionist regularly provide consulting services, a psychiatric consultant is available on an irregular basis, and central administrative staff are responsible for specific business matters.

About 46 children were enrolled during 1964 and there was an average daily attendance of about 34. The teaching staff included three teachers, three aides, and two students; the rest of the staff was made up of a full-time director, secretary, cook-maid, maintenance man, and a part-time social worker.

There are many sources of referral to the school, but priority is given to those children referred by the Family Service Society, the Visiting Nurse Association, or the several psychiatric clinics in the community. Intake is handled by the social-worker who uses the criterion of "need"-mother working, problems in the home, etc. Fee payments,which average about $3.75 a week, are based on a sliding scale and not too much investigation is made of expressed inability to pay-income tax returns are not checked, according to the director, and the word of the applicant is generally taken as stated.

The building is old and not really geared to the running of a nursery school (one of the floors used to be a solarium where TB children were housed). The indoor play materials seemed more than adequate and well-used, but outdoor equipment seemed very limited. Outdoor activity was restricted to walking around the block or playing on the hard concrete surface of the fenced-in yard with some balls, tricycles, and swings. The warmth and affection shown by the staff towards the children, however, would seem to compensate for any inadequacies in equipment or facilities. Each child had his own cot for napping, a hot lunch was served daily and snacks given after nap-time.

Staff meetings were held weekly, and in addition weekly individual conferences were conducted by the director with each teacher. Monthly meetings were held with mothers, the staff social worker and the director which lasted for about two hours and had a regular attendance of about 20 mothers. The subjects discussed at these meetings were suggested by the mothers and included topics like sex, health, behavior problems, discipline, etc.

The school observes the usual school vacations and holidays and does not operate during the summer at the usual location. The special summer program is conducted at separate facilities with specially hired staff, though many of the same children may be in attendance.

PROPRIETARY:

This is the only proprietary, profit-seeking school in the study. It operates on a year round basis and is located in the midst of a Negro neighborhood, in a three-story house owned and lived in by the director who also owns and runs another nursery school-kindergarten a short distance away. In the field of day care services for children, the proprietary nurseries outnumber the non-profit ones by a considerable margin. Whether or not this school is typical, we have no way of determining. A constant problem in this center was the inadequacy of records, and an unwillingness to share information-about finances, families, or anything else.

According to the outside observer responsible for the time analysis here, Proprietary School was more of a baby sitting establishment than a school. The building was old and shabby, but the rooms were spacious, airy, cheerful and attractively decorated. There were almost no play materials available indoors--what they had was old, broken, and rarely used. Approximately one hour a day (mid-morning) was set aside for some kind of group activity--singing, story telling, games. Finger painting was observed once, coloring, clay modeling, water play were never observed. Outdoor play, when it was allowed, was thoroughly enjoyed and the gyms, swings, and tricycles were enthusiastically used. Most of the time, according to the observer, the children wandered around aimlessly or watched television.

For most of the year, the number of staff was inadequate, and the person in charge was an elderly woman. From 7:00 to 9:00 in the morning this woman was alone with the children and she had responsibility for cooking and serving breakfast, as well as for removing coats, maintaining discipline, etc. During this period of two hours, up to 40 children were brought in, given breakfast, and then were divided into several groups, depending upon whether they were to remain all day at Proprietary School or be transported to either a public kindergarten or the director's privately organized kindergarten. From 9:00 a.m. to 3:00 p.m. the teacher and one assistant cared for at least 25 children ranging in age from 18 months to four years. A second teacher, one with a warm, pleasant personality who tried to involve the children in more group play activities, left on maternity leave soon after school started and was never replaced.

The children were physically well cared for, the food was good and ample, and the children were kept clean and freshly diapered. Discipline was strictly maintained, but it was consistent and affection was frequently shown. Independence in feeding and dressing was encouraged by staff.

Tuition fees are based on the ability to pay, with the average fee being between $12.00-$14.00 a week, according to the director. In addition to this, a registration fee and a $5.00 P.T.A. fee are required, and a $4.00 health fee is voluntary and makes available periodic health checkups for the child.

HALF DAY PROGRAMS

UNIVERSITY:

This is a charitable non-profit organization operating under the auspices of a University Psychology Department. The school has the dual purpose of serving as a laboratory for psychology students interested in child-growth and development, and providing pre-school education for a group of three-and four-year old children.

An Advisory Board of members of the Psychology Department supervises the functioning of the school and meets once a month with the director to discuss broad policy issues.

The nursery school is located on the first floor of a spacious, clean, modern building. There are two large classrooms, a children's toilet, small kitchen, two administrative offices, and an observation room with one-way windows and an amplifier. There is an outdoor play area with jungle gym, sandboxes, tricycles, swings and other such equipment. The school is well-equipped for both indoor and outdoor play.

Since the University heavily subsidizes the nursery school, preference is given to applicants who are University employees and the tuition rate for University affiliated families is $175 a year while it is $275 for the non-affiliated. Children presenting special problems are not accepted. The school tends to follow the University calendar, observing the usual holidays and vacations.

In general, parents of children enrolled here are middle to upper class, well educated, and articulate in their goals for their children. Each parent is interviewed prior to admission by the director, and during the course of the year individual conferences are scheduled in order to discuss the child's progress. Two or three group meetings are also scheduled for evenings when fathers can attend.

The children attend school from 9:00 a.m. to 11:45 a.m. Monday through Friday. They are divided into two groups, one for three-year olds, and one for four-year olds. During 1964-1965 there were 14 children in the first group and 15 in the second. The staff includes a director-teacher, a teacher, and a secretary. Both the director and the teacher are highly trained professionals, with Masters degrees in the field of early childhood education. They are assisted by student teachers from two of the nursery training schools in the Greater Boston area, as well as by psychology students from the University. The usual work day for the director and teacher is from 8:30 a.m. to 3:00 p.m., and after teaching the children they spend time preparing for the next day, holding staff meetings, conducting conferences with parents, student teachers, and psychology students, as well as participating in a number of community activities.

COMMUNITY CENTER:

The nursery school is sponsored by a Community Center, a non-profit agency partially subsidized by the Combined Jewish Philanthropies, and has been in operation since 1948, at its present location for seven years. The Community Center occupies a large, modern, well-kept building built for this purpose, and the nursery school program is conducted in four classrooms on the second floor which are well-lit, airy, and furnished with small tables and chairs, and varied play and educational equipment. There is also adequate outdoor play space, with swings, tricycles, etc.

For most of 1964 the average enrollment at Community Center School was 48 with an average daily attendance of 43 children. The staff included a director-teacher, a teacher, an assistant, and two student teachers. The secretary, bookkeeper, maintenance man, etc. of the Community Center also served the nursery school. The maintenance man's responsibilities included driving the children to and from the Center, and, on occasion, on field trips. The director of the Community Center, a professionally trained social worker, is also available to the director of the nursery school for consultation.

In October of 1964 the school expanded, the enrollment of children rose to 65 and the staff was increased to nine. The school is open from 9:00 a.m. to 12 noon, Monday through Friday, with Jewish holidays being observed in addition to the usual public school holidays.

The nursery school is open to children of Community Center members, and if 1964 was a typical year they are middle-class families, well-educated, and hold professional jobs. The fee charged for nursery school was $235 per year plus $130 for transportation.

Staff meetings are held weekly, and the director sits in on Community Center staff meetings which are also held weekly.

COUNTRY:

Country School was established in 1932 as a proprietary institution, but in 1948 became incorporated as an educational non-profit corporation, conducting both a school and a summer camp program. A Board of Trustees exerts only titular control, but an Advisory Committee composed of about 20 parents of past and present students was recently formed to serve in a consultative and liaison capacity.

Major support for the school comes from tuition fees and a smaller part comes from fund-raising projects. Tuition varies according to whether or not the school provides transportation and whether the child is enrolled in the nursery school or kindergarten program. The range of yearly tuition for the nursery school during 1964-65 was from $324.00 to $432.00, and for the kindergarten children from $360.00 to $468.00. The usual holiday and vacation schedule is observed.

The families of children enrolled at Country School are predominantly upper-middle class, well-educated, and Jewish.

The school program is conducted in two separate sessions--one in the morning (9:00-11:45 a.m.) and one in the afternoon (1:00-3:45 p.m.) Monday through Friday.

The morning session is preferred by many parents, but not all such requests can be met. About 110 children are enrolled for each session, and are under the supervision of five head teachers and nine assistant teachers.

The large staff includes a non-teaching director, 20 teachers (seven full time, 13 part time), four secretaries (1 full time, three part time), a maintenance man, seven drivers, a housekeeper, and a nurse. The size of the children's groups varies from 12 for the three-year olds to 30 for the five-year olds. Except for the youngest group which has only 12 children, all groups have three teachers--one head teacher, and two assistants.

The director places great emphasis on creative and dramatic play and both the indoor and outdoor equipment reflect this. Indoors there are housekeeping and block building corners, books, records, musical instruments, and a variety of art supplies. The large outdoor area includes 32 acres of land containing fields, woods, and a duck pond, used not only for outdoor play but for nature study as well. In addition, there are a number of imaginatively constructed pieces of play equipment made from lumber, old cars, and other such materials, intended to stimulate dramatic play.

The director has a Masters Degree in Education and has had some teaching experience in elementary schools. The rest of the staff, however, does not always meet the requirements for Massachusetts certification. Of the 16 teachers who responded to a questionnaire sent to staff of all the schools, only two have a Bachelors Degree and three have an Associates Degree, though 10 indicated that they had attended college at some time. Five of the 16 teachers reported that they still needed courses to meet Massachusetts certification requirements. Perhaps in recognition of the need for additional staff training, the director each year organizes a course or a series of seminars on some phase of early childhood education or child development. Sometimes these sessions are conducted by an outside expert, sometimes by the director herself. During 1964-1965 a six-week seminar was held, meeting one night a week. A special fund has recently been established for professional growth, and will offer subsidies to teachers seeking additional education.

The large number of children enrolled at the school makes it necessary to institute certain procedures to insure a smooth operation. Transportation, for example, is handled in a most efficient, assembly line kind of fashion. The general atmosphere, based on observation, seems to be warm and accepting, with teachers seeming to enjoy children and to be skillful in working with them.

Table I gives a summary description of the schools under consideration and points up some of the similarities and differences that exist among them. The effect of these similarities and differences on the cost of the programs will be discussed later.

There is no information available as to the capacity of each school, in relation to the size of the physical plant and the number of teachers on the staff. Enrollment figures in pre-school programs tend to exceed capacity figures, since there is no expectation that every child will attend every day. The extent of over-enrollment, however, is difficult to measure for this reason. Keeping over-enrollment within safe limits is a problem faced by all school administrators. It can be seen that each of the schools does enroll more children than actually attend, though there is a greater proportional disparity between enrollment and attendance at full day schools Milltown and Association than at any of the other places.

TABLE I

SUMMARY OF DESCRIPTIVE DATA FOR EACH SCHOOL, 1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS			
	Mill Town	Association	Proprietary	University	Community Center	Country	
						A.M.	P.M.
No. School Days	243	183	249	146	154	163	161
No. Children Enrolled	50	46	31	27	54*	112	108
Average Daily Attendance	40	34	25	23	48*	99	93
Per Cent of Absenteeism	21	25	16	12	12	12	14
No. Teachers & Assistants, including regular student teachers	6	8	2	4	6*	14 per session	
Average Size Groups	25	23	25	13	16	22 (range from 12-30)	
Teacher-Pupil Ratio (No. Pupils enrolled ÷ No. Teachers)*	1 : 8	1 : 6	1 : 15	1 : 7	1 : 9*	1 : 8 (Average)	

TABLE I (cont.)

SUMMARY OF DESCRIPTIVE DATA FOR EACH SCHOOL, 1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Community Center	Country A.M. P.M.
No. Teachers with some College Educ.	3	3	Not Known	2	3	10
Staff Meetings Held	Monthly	Weekly	None	Weekly	Weekly	Monthly
No. Progress Reports Written for Each Child	2	3	None	3	1	3
Meetings with Parents	Admiss. interview; indiv. conf. as needed	Admiss. interview; indiv. conf; grp.meetings	P.T.A. meetings	Admiss. interview; indiv.conf.; grp. meetings	Indiv. conf; grp. meetings	Indiv.conf. as needed; grp. meetings
Average Fee Charged	$5/week	$3.75/week	$12-14/week	$175/year Univ. affil. $275/year non-affil.	$235/yr.+ $130 for transp.	$324-432 year depending on transp. for nursery; and $360-468/year for Kindergarten

*During January - October 1964, the school had 48 children enrolled, with an average daily attendance of 43, and a teaching staff of 5. In October the enrollment was increased to 65 children, with an average daily attendance of 57, and the teaching staff was increased to 9. The figures used here represent a composite of the first 7 months plus the last 3 months of the school year.

The average size of the children's groups tends to be similar--about 23 children--, except at half-day schools University and Community Center where the groups are much smaller. With the exception of Proprietary School, the ratio of teaching staff to children also tends to be similar, well within the limits imposed by the Mass. Rules and Regulations for the licensing of day care programs (including nursery schools) of 1 adult for every 10 children or fewer if the program runs longer than 3 hours and the children are 3-4 years old, or 1 adult for every 15 or fewer children if the children are 5-6 years old. For programs that last less than 3 hours, the regulations are that there should be 1 adult for groups of 12 or fewer children if they are 3-4 years old, or 1 adult for every 25 or fewer children if they are 5-6 years old.

Except for Proprietary School, staff meetings are held on a regular basis--weekly in some cases, monthly in others--, progress reports are written for each child noting his growth and development, and opportunities are made available for parents to meet with staff on an individual as well as on a group basis.

The differences noted seem to relate more to the organizational structure of the several programs than to the content of the programs themselves. For example, the schools differ considerably in the number of days during which service is provided. The range for 1964 was from 146 days, or approximately 29 weeks of the year at half day University School, to 249 days, or approximately 50 weeks, at full day Proprietary School. The size of the programs also varied, from a low of 27 children enrolled at half day University School to a high of 112 children enrolled at half day Country School. Among the full day programs the range was from 31 enrolled at Proprietary School, to 50 enrolled at Milltown School.

Accurate information about staff education was not available. An effort was made to get information from staff about educational background, previous job experience and other items, but response to a mailed questionnaire was spotty an follow-up attempts were not effective. Among the full day programs, Milltown had three teachers with some college education and three assistants with none; Association had three teachers with some college training, three aides with none, and two student teachers currently at college; no information was available for the staff at Proprietary. Only at half day University School was it known that the two teachers had master's degrees, the other two on the staff were student teachers. At Community Center three of the teachers had some college education and the other two staff members were students. Country School had ten teachers with some college background, three with no college education, and 1 regular student teacher.

The fees paid by parents varied considerably and will be discussed in greater detail later.

With this descriptive material as background, let us now turn to a consideration of the costs of the several programs as arrived at through the use of the cost analysis procedures described in the preceding chapter.

B. Costs of Day Care Programs

The operating costs for each school--salaries, utilities, equipment, maintenance, supplies, etc.--were obtained in every case but Proprietary from audited reports. The expense figures for Proprietary School were not audited and therefore may not be completely accurate. They were, however, the only figures available. The operating expenses in each instance were then broken down into the appropriate functional category, as described in the chapter on methodology.

TABLE II

COMPARISON OF PROPORTIONAL COSTS OF OPERATION, BY OBJECTS OF EXPENDITURE, FOR EACH SCHOOL ---1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	MILLTOWN	ASSOCIATION	PROPRIETARY	UNIVERSITY	COMM. CTR.	COUNTRY
Total Operating Cost	$ 46,922.02	$ 40,442.19	$ 14,944.69	$ 18,244.89	$ 24,815.44	$ 92,976.71
	%	%	%	%	%	%
Objects of Expenditure:						
Salaries:						
Direct	78.4	70.3	82.1	62.0	55.4	67.9
Allocated	-	13.3	-	-	15.8	-
FICA:						
Direct	3.5	2.5	2.9	2.0	2.0	2.9
Allocated	-	.4	-	-	.4	-
Insurance:						
Direct	1.4	.5	2.6	.2	.9	3.7
Allocated	-	.1	-	-	-	-
Mainten'ce of Facilities:						
Direct	3.2	-	4.0	-	5.2	4.7
Allocated	-	-	-	22.3	-	-
Equipment:						
Direct	3.0	2.8	.6	6.8	8.2	6.3
Allocated	-	.7	-	-	-	-
Gen'l Admin:						
Direct	3.4	1.5	2.3	2.4	4.6	1.7
Allocated	-	1.1	-	2.3	-	-
Food	7.1	6.8	4.6	2.0	1.7	2.6
Transportatio	-	-	.9	-	5.8	10.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table II shows one way of comparing costs of operation, based on simple objects of expenditure for each school. The usefulness of this kind of comparison is limited by the all-inclusive nature of the categories. For example, the items of staff, equipment and administration are too general and broad to provide any basis for comparability. More important, this procedure makes it impossible to relate cost to the particular services provided in each instance. This method does, however, point up sharply the large percentage of total cost represented by salaries, and for those centers which are part of larger organizations it shows the proportion of allocated costs to direct costs.

Functional categories, it was felt, would provide a more meaningful basis for comparison. The next chapter will discuss the use of the time analysis in distributing salaries into the appropriate categories. The allocations of costs discussed in this chapter, in so far as salaries represent the major expenditure of money, are based on these data from the time analysis.

Table III shows a comparison of this functional breakdown for each school, including both salary and non-salary expenses. Table III-A compares the percentages that result when the cost of transportation (a reimbursable item) is deducted and other costs are then recalculated. The effect of transportation costs on unit costs will be discussed later.

TABLE III

PERCENTAGE DISTRIBUTION OF OPERATING COSTS, BY CATEGORY, FOR EACH SCHOOL

1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Community Center	Country
	$	$	$	$	$	$
Total Operating Cost	46,922.02	40,442.19	14,944.69	18,244.89	24,815.44	92,976.71
Activity Category	%	%	%	%	%	%
A (Admissions)	2.2	2.7	.2	1.6	.5	.2
B (Transportation)	.1	.8	23.6	.1	14.5	24.6
C (Parent Counseling)	2.7	3.5	-	2.8	.5	.3
D (Child Care)	17.1	16.8	28.1	4.3	8.1	7.2
E (Nutrition)	21.6	20.2	26.9	4.7	11.8	7.1
F (Health)	.6	.1	.6	.2	.8	3.0
G (Education)	33.6	28.8	14.4	46.4	47.2	42.9
H (Parent Grp. Meeting)	-	.3	.2	.9	.7	.6
I (Student Training)	.1	.7	-	7.1	.4	.3

TABLE III (cont.)

PERCENTAGE DISTRIBUTION OF OPERATING COSTS, BY CATEGORY, FOR EACH SCHOOL

1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Community Center	Country
	$	$	$	$	$	$
Total Operating Cost	46,922.02	40,442.19	14,944.69	18,244.89	24,815.44	92,976.71
Activity Category	%	%	%	%	%	%
J (Research)	1.4	.9	.1	6.0	.1	.1
K (Community Activity)	1.7	1.7	-	5.6	-	.6
Q (Administration)	18.9	23.5	5.9	20.3	15.4	13.1
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

TABLE IIIA

PERCENTAGE DISTRIBUTION OF TOTAL OPERATING COSTS EXCLUDING TRANSPORTATION, BY CATEGORY, FOR EACH SCHOOL - 1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	MillTown	Association	Proprietary	University	Community Center	Country
Total Operating Cost	$ 46,922.02	$ 40,442.19	$ 14,944.69	$ 18,244.89	$ 24,815.44	$ 92,976.71
% of Total Represented by Transportation	.1	.8	23.6	.1	14.5	24.6
Total Operating Cost excluding Transportation	$ 46,857.25	$ 40,133.71	$ 11,428.94	$ 18,221.38	$ 21,219.77	$ 70,122.68
Activity Category, excluding Transportation	%	%	%	%	%	%
A (Admissions)	2.2	2.8	.3	1.6	.6	.2
C (Parent Counselling)	2.7	3.6	-	2.8	.6	.4
D (Child Care)	17.2	16.9	36.7	.3	9.5	9.6
E (Nutrition)	21.7	20.4	35.2	.7	13.8	9.4
F (Health)	.6	.1	.8	2	1.0	3.9
G (Education)	33.6	28.9	18.8	.4	55.0	56.9
H (Parent Grp. Meetings)	-	.3	.3	.9	.8	.8

TABLE IIIA (cont.)

PERCENTAGE DISTRIBUTION OF TOTAL OPERATING COSTS EXCLUDING TRANSPORTATION, BY CATEGORY, FOR EACH SCHOOL - 1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Community Center	Country
Total Operating Cost	$ 46,922.02	$ 40,442.19	$ 14,944.69	$ 18,244.89	$ 24,815.44	$ 92,976.71
% of Total Represented by Transportation	.1	.8	23.6	.1	14.5	24.6
Total Operating Cost excluding Transp.	$ 46,857.25	$ 40,133.71	$ 11,428.94	$ 18,221.38	$ 21 , 219.77	$ 70,122.68
Activity Category, excluding Transp.	%	%	%	%	%	%
I (Student Training)	.1	.7	-	7.1	.5	.4
J (Research)	1.4	.9	.2	6.0	.1	.2
K (Community. Activities)	1.6	1.7	-	5.6	-	.9
Q (Administration)	18.9	23.7	7.7	20.4	18.1	17.3
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Except for Proprietary School, it would seem, on the basis of available data, that attempts to make sharp differentiations beween day care programs and nursery school programs, other than those resulting from the differing lengths of the day, are unwarranted. It would be useful to have more information about proprietary schools--a review of the literature revealed very little written specifically about such centers, and yet by far the largest number of facilities available for group day care of children are proprietary. There is no way, therefore, of knowing the extent to which Proprietary School in this study is similar to or different from most of this kind.

Before attempting to compare the costs of different functions in the several schools, major variations among them need to be taken into account. In order to have some common basis for comparison, total costs have to be related to differences in the number of children served, the length of the school day, and other such variable factors. Table IV shows the calculations made for arriving at a cost per child hour and a cost per child day at each school, using attendance records. The differences between cost based on attendance and cost based on enrollment will be discussed later. Table V compares the cost per child hour, breaking it down in each school into the proportional costs for each functional category, based on the percentage distribution of operating costs.

TABLE IV

COMPARISON OF COST PER CHILD HOUR AND COST PER CHILD DAY FOR EACH SCHOOL, BASED ON OPERATING COSTS AND ATTENDANCE RECORDS - 1964

COST PER CHILD HOUR

School	Number Hours in School Day	Total Operating Cost	÷	Total No. Child Hours	=	Cost Per Child Hour
FULL DAY:		$				$
Mill Town	7 (Average)	46,922.02		67,424		.70
Association	7 (Average)	40,442.19		44,520		.91
Proprietary	9 (Average	14,944.69		56,187		.27
HALF DAY:						
University	2 3/4	18,244.89		9,416		1.94
Comm. Ctr.	3	24,815.44		22,029		1.13
Country	2 3/4 (Each Session)	92,976.71		85,464		1.09

COST PER CHILD DAY

School	No. Days School Open	Total Operating Cost	÷	Total No. Child Days	=	Cost Per Child Day
FULL DAY:		$				$
Mill Town	243	46,922.02		9,632		4.87
Association	183	40,442.19		6,218		6.50
Proprietary	249	14,944.69		6,243		2.39
HALF DAY:						
University	146	18,244.89		3,424		5.33
Comm. Ctr.	154	24,815.44		7,343		3.38
Country	162	92,976.71		31,078		2.99

TABLE V

BREAKDOWN OF COST PER CHILD HOUR BY SCHOOL AND ACTIVITY*

1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Comm. Ctr.	Country
No. Days School Open	243	183	249	146	154	163
Avg. Daily Attendance	40	34	25	23	48	(Both Sessions) 192
Total Operating Cost	$ 46,922.02	$ 40,442.19	$ 14,944.69	$ 18,244.89	$ 24,815.44	$ 92,976.71
Cost Per Child Hr.	.70	.91	.27	1.94	1.13	1.09
Activity Category:						
A(Admission)	.02	.02	*0	.03	.01	*0
B (Transp.)	*0	.01	.06	*0	.16	.27
C(Counsel'g)	.02	.03	-	.05	.01	*0
D(Ch. Care)	.11	.15	.08	.08	.09	.08
E(Nutrition)	.15	.18	.07	.09	.13	.08
F(Health)	*0	*0	*0	*0	.01	.03
G(Education)	.24	.26	.04	.91	.53	.47
H(Parent Meetings)	-	*0	*0	.02	.01	.01
I(Student Training)	*0	.01	-	.14	*0	*0
J(Research)	.01	.01	*0	.11	*0	*0
K(Comm. Activities)	.01	.02	-	.11	-	.01
Q(Admin.)	.13	.21	.02	.39	.17	.14

*This breakdown is based on the percentage distribution of total operating costs; see Table III.

*0 = Less than $.01

Except for the schools that provide their own transportation to children (Proprietary, Community Center and Country), it can be seen that the major expenditures are for education (G), administration (Q), child care (D) and nutrition (E). Every school but Proprietary spends proportionately more on education than any other function. If we take just these four activities and rank them according to the proportion of money spent by each school for each activity, we can see how similarly money is spent, regardless of whether it is a full day or a half day program:

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Community Center	Country
(1)(largest am't)	Educ. (G)	Educ. (G)	Ch.Care (D)	Educ. (G)	Educ. (G)	Educ. (G)
(2)	Nutr. (E)	Admin. (Q)	Nutr. (E)	Admin. (Q)	Admin. (Q)	Admin. (Q)
(3)	Admin. (Q)	Nutr. (E)	Educ. (G)	Nutr. (E)	Nutr. (E)	Ch. Care (D)
(4)(smallest am't)	Ch.Care (D)	Ch.Care (D)	Admin. (Q)	Ch.Care (D)	Ch.Care (D)	Nutr. (E)
% of total expenditures, combining: Education Child Care Nutrition Administration	91.2	89.3	75.3	75.7	82.3	70.3

Before discussing the problems of comparability, some general comments and comparisons can be made. If in Table V we look at the full day programs and half day programs separately, we can see that two out of three in each group are similar. Of the full day programs, Proprietary School is strikingly different from the other two. But the inadequacy and unverifiability of the cost figures obtained there make it difficult to make legitimate comparisons with the other schools. Both Mill Town and Association spend their money in very similar ways. The most significant difference between the two is the cost of administrative activities (Q), and this probably results from the allocation of a portion of the costs of the central administrative office to Association School which is part of a federation. This allocation, of course, makes the cost per child hour at Association higher than it would otherwise be. This difference in cost, however, also represents additional services provided by the central office which are not found in any of the other centers. For example, the consulting and supervisory services of a nutritionist, early childhood educator, and social worker are not only available but scheduled on a regular basis for use by member centers.

Among the half day programs, Community Center and Country Schools not only have similar costs per child hour, but spread their cost over the several categories in very similar fashion, except for the higher cost of transportation (B) at Country School. Transportation there almost amounts to big business--the number of cars, the number of drivers, the number of children involved all contribute to the higher cost.

The higher cost per child hour at University School is reflected in higher costs in some of the functional categories. The significantly higher costs are for parent counseling (C), education (G), student training (I), research (J), community activities (K), and administration (Q).

In general, for both full day and half day programs, it would appear that higher cost per child hour is associated with smaller numbers of children served and fewer days of service provided. Proprietary School, again, does not follow the pattern, but the unverifiability of the data raises questions about their usefulness.

If Mill Town and Association are deemed to be typical of full day programs and Community Center and Country typical of half day programs, then it is interesting to see how close they seem to be with respect to many of the categories. One differentiation between day care centers and nursery schools is made on the basis that the former usually has a social worker on the staff, while the latter does not. Where there is a social worker, she has the responsibility for conducting admissions interviews (A) and doing parent counseling (C). We can see from Table V that on the basis of the child hour the cost of A and C activities for schools having a social worker is not much greater than for those not having one, and, as a matter of fact, the cost of such activities is greatest at University School where the work is done by the director and teacher. The costs per child hour for child care (D) and nutrition (E) are also similar, and the closeness of these costs at full day Mill Town and half day Community Center is striking.

When, however, cost figures are calculated on the basis of the child day, a different picture emerges, as shown in Table VI. From this perspective, the difference between full day and half day programs is brought into sharper focus. The costs of admissions (A), parent counseling (C), child care (D), nutrition (E), and administration (Q) are all higher for the full day centers, but the cost of education (G), which on the basis of the child hour was much lower for the full day school, is much more in line when the whole day is considered. Although

TABLE VI

BREAKDOWN OF COST PER CHILD DAY, BY SCHOOL AND ACTIVITY - 1964*

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Comm. Ctr.	Country
No. Days School Open	243	183	249	146	154	163
Avg. Daily Attendance	40	34	25	23	48	(Both Sessions) 192
Total Operating Cost	$ 46,922.02	$ 40,442.19	$ 14,944.69	$ 18,244.89	$ 24,815.44	$ 92,976.71
Cost Per Child Day	4.87	6.50	2.39	5.33	3.38	2.99
Activity Category:						
A(Admissions)	.11	.18	.01	.08	.02	.01
B(Transport.)	*0	.05	.56	.01	.49	.74
C(Counseling)	.13	.23	-	.15	.02	.01
D(Child Care)	.84	1.09	.68	.23	.27	.22
E(Nutrition)	1.05	1.31	.64	.25	.40	.21
F(Health)	.03	.01	.01	.01	.03	.09
G(Education)	1.64	1.86	.34	2.47	1.60	1.27
H(Parent Meetings)	-	.02	.01	.05	.02	.02
I(Student Training)	*0	.05	-	.38	.01	.01
J(Research)	.07	.06	*0	.32	*0	*0
K(Community Activities)	.08	.11	-	.30	-	.02
Q(Administration)	.92	1.53	.14	1.08	.52	.39

* This breakdown is based on the percentage distribution of total operating costs; see Table III.

*0 = Less than $.01

cost per child hour would seem to be a more useful unit of measure, it can be seen that there are distortions that result, unless full day and half day programs are dealt with separately.

Although detailed information is lacking, it is possible to make a rough comparison of the unit cost of programs studied for purposes of this project with cost figures available for similar kinds of programs in the Metropolitan Boston area. The Boston Globe on January 12, 1966 described a new day care center recently opened under the auspices of the Salvation Army, which cares for 50 pre-school age children five days a week from 9:00 A.M. to 5:00 P.M. "Few families," it says, "can afford the $30 a week that it costs the Army to run its day care program. Few, in fact, pay even $10 a week." Just from this simple information it is possible to calculate that it costs them 75¢ per child hour to run this program. What is unclear in this report is whether the number of children mentioned is the number enrolled or the number in attendance.

This same newspaper on December 13, 1965 reported on a Cambridge industrial firm that was interested in sponsoring a pre-school program for the children of women in its employ.

The company had found that many qualified workers were unable to accept full-time work because of lack of child care facilities. The information they came up with was that it would cost $29 per child week for 50 weeks of five eight-hour days each, or roughly 72¢ per child hour.

As can be seen, these figures are very close to the figures arrived at for Mill Town (70¢). The figure 91¢ per child hour at Association is higher, in large part because, as has been pointed out earlier, it includes an allocation of central office expenses to the nursery school--an allocation, it will be shown later, that adds about 15¢ per child hour to the cost of that program.

C. SOURCES OF VARIABILITY IN COSTS

Differences in the unit cost of the six centers reflect the variety of differences that exist among them. For example, not only is there a difference in the length of the programs, but also in the rates of utilization. Some schools provide transportation, some do not. Although transportation, where provided, is reimbursed by parents, for our purposes it shows up as part of the cost per child hour. Differing rates of pay for personnel also affect the cost per child hour, as do the kind of personnel hired and the kinds of services offered. The cost of facilities varied so considerably from one place to another that, upon advice from accounting consultants, this was not included as part of operating costs and therefore is not reflected in the unit cost figures.

Each of these items will now be discussed in greater detail.

1. Utilization

The first issue to be considered is the extent to which the facilities are being used to capacity. Presumably the differences in the length of the school day as well as the differences in the number of children served are equalized by using the child hour as the unit of measure. The problem of utilization, however, has several aspects which can affect the calculation of a unit cost figure. Cost based on enrollment figures is lower than cost based on attendance records, yet who is to say which is the more accurate or more useful cost? Because absenteeism is taken for granted, almost all schools over-enroll children to ensure attendance somewhere near their capacity. Table VII compares the enrollment and attendance figures for each of the schools studied during 1964, showing the per cent of absenteeism that exists in each school.

TABLE VII

COMPARISON OF ENROLLMENT AND ATTENDANCE FIGURES BY DAYS FOR EACH SCHOOL - 1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS			
	Mill Town	Association	Proprietary	University	Community Center	Country A.M.	Country P.M.
Total No. School Days	243	183	249	146	154	163	161
Total Child Days Enrollment	12,133	8,330	7,404	3,883	8,310	18,325	17,327
Average Daily Enrollment	50	46	30	27	54	112	108
Total Child Days Attendance	9,632	6,218	6,243	3,424	7,343	16,100	14,978
Average Daily Attendance	40	34	25	23	48	99	93
Per Cent of Absenteeism	21%	25%	16%	12%	12%	12%	14%

The per cent of absenteeism is markedly similar at the half day programs. The differences among the full-day programs follow a pattern that may be explainable in terms of whether or not the mothers go out to work. Association has the highest rate of absenteeism and the fewest number of working mothers, which may mean that these children are freer to stay home if they so desire; Mill Town is next with a greater proportion of working mothers and a lower rate of absenteeism; and Proprietary with the largest number of working mothers has the lowest rate of absenteeism. One observer at Proprietary commented on the number of sniffling noses she encountered, and it may well be that if a day's wage is at stake for the mother, a child is sent to school with symptoms that otherwise might keep him home.

An argument against using actual attendance in computing cost is based on the assumption that most operating costs continue, regardless of whether or not children are absent for all or part of the day. While this may be true, it is also true that enrollment represents a kind of gamble on the part of the administrator and almost always is in excess of capacity. Attendance, on the other hand, represents a fact--so many bodies were actually present during a given period of time. Attendance figures were therefore used in this study.

There is little utility in discussing a theoretically possible cost per child hour since there is slight likelihood of any full-day program being filled and utilized to capacity every day. From the point of view of meeting the needs of families of working mothers, what is clearly needed is greater flexibility in the scheduling of hours of the child-serving programs, so that a child may continue to be kept under supervision until the mother returns from work instead of being picked up by an older sibling, a relative, or a neighbor several hours before the mother's return. Since working hours vary, as a practical matter

TABLE VIII

COMPARISON OF ENROLLMENT AND ATTENDANCE COST FIGURES FOR EACH SCHOOL, BY CHILD, BY CHILD DAY AND BY CHILD HOUR - 1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Community Center	Country
Total No. School Days	243	183	249	146	154	163
No. Children						
Avg. Attendance	40	34	25	23	48	192
Avg. Enrollment	50	46	30	27	54	220
Total Operating Cost	$ 46,922.02	$ 40,442.19	$ 14,944.69	$ 18,244.89	$ 24,815.44	$ 92,976.71
Cost Per Child						
By Attendance	1173.05	1189.48	597.78	793.26	516.98	484.25
By Enrollment	938.44	879.18	498.16	675.74	459.54	422.58
Cost Per Child Day:						
By Attendance	4.87	6.50	2.39	5.33	3.38	2.99
By Enrollment	3.87	4.85	2.02	4.70	2.99	2.61
Cost Per Child Hour:						
By Attendance	.70	.91	.27	1.94	1.13	1.09
By Enrollment	.55	.69	.23	1.71	1.00	.95

there will continue to be a variety of arrangements made in scheduling supplemental care for children.

Table VIII shows graphically the cost differential by child, by child day, and by child hour, depending upon whether attendance or enrollment figures are used. Costs, therefore, can be made to seem higher or lower, and administrators must make a decision as to the kind of cost picture they wish to portray. Since the base on which cost is calculated makes such a difference, particularly in the full day schools, it should be clearly stated in any discussion of unit costs, which set of figures is being used.

2. Auspices

A second factor making for non-comparability is the differing auspices and sponsorships of child-care programs. The only two programs studied that depend only on fees or private fund-raising efforts for their money are half-day Country and full-day Proprietary. The others receive subsidies in the form of money, consulting staff, building space, or a variety of other benefits derived from being part of a larger agency. A consequence of this affiliation, from the point of view of computing costs, is that some portion of the operating costs of these parent bodies have had to be allocated to the affiliates. The only place this was not done was at Mill Town, which gets one-third of its operating budget from United Fund monies as an outright grant, but which otherwise is an independent program, unaffiliated with any sponsoring group.

Association is part of a federation of day care programs and shares in the services made available through the central office. A proportionate allocation of these central office expenses* was, therefore, made to Association, and the cost per child hour here reflects the sum of both direct expenses and the allocated central office expenses. If the entire central office allocation of $7962.08 is deducted from the grand total of $40,442.19, then the cost per child hour is reduced to 73¢ from 91¢ ($32,480.11 divided by 44,520 child hours). It would seem to make sense, however, to include as an expense to Association the salary of the social worker provided by the central office ($1,221.54) plus a proportionate part of the cost of substitute teachers also provided through central auspices (at the computed rate of 22% of their total salaries, this comes to $444.32). Adding this $1665.86 to actual Association expenses of $32,480.11 gives a new total of $34,145.97 and a revised cost per child hour of 77¢. But since Association is in fact part of a federated system of programs, it must indeed bear its share of administrative and other costs involved in running such a federation. The fact that this results in a higher cost figure per child hour is a necessary consequence, making difficult a fair comparison with other programs differently organized

The very high cost per child hour at University is likewise in large measure a consequence of its affiliation with a larger agency, though the cost is also affected by the fact that the school is open the fewest number of days during the year, serves the smallest number of children, and pays it director and teacher the highest salaries. As a result of its being part of a University, a portion of general University overhead expenses of a non-comparable nature (security, grounds, audio-visual department, etc.) adding up to almost $1000 were allocated to the School's operating budget. These expenses probably would not be incurred were the school not part of the University. Certain other expenses probably would be substantially lower if the school operated independently. For example, custodial services supplied by the University amounted to $2860 for the share borne by the nursery school when a proportional allocation was made of total custodial expenditures. This amount of money represents 16% of the school's operating budget for the year, completely out of line with what probably would have to be expended for this service if the school were independent of the University. At the four other schools which pay for custodial or janitorial service, such costs represent the following proportions of their total operating budgets:

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* See Appendix III, Item 7.

SCHOOLS	PROPORTIONAL COST OF CUSTODIAL SERVICES
Mill Town	8%
Association	6%
Community Center	7%
Country	5%

If the non-comparable overhead costs mentioned first (in the amount of $910.13) are deducted from the total operating costs of $18,244.89, the cost per child hour is reduced by 9¢, from $1.93 to $1.84. Further manipulations can then be made to get the cost of custodial service more in line with the costs incurred by the other schools for such service, thereby further reducing the cost per child hour. For example, if 7% of operating costs is taken as the average expenditure for janitorial services, then the following calculations can be made:

$18,244.89 -3,770.13	($910,13 non-comparable University overhead allocation, plus $2,860.00 custodial allocation)
$14,474.76 1,013.00	(7% of $14,474.76 to be allocated for custodial service)
$15,487.76	

By taking this figure of $15,487.76 as the total operating expense of the nursery school, and dividing by 9,416 child hours for the year, the revised cost per child hour becomes $1.64.

But, again, the reality is that the nursery school is part of the University, that University costs must be allocated among its several departments, and that, if such an allocation results in higher unit costs, this must be taken into account in setting up and administering programs under such auspices.

The situation with Community Center School sponsored by a Community Center, is similar. By recalculating operating costs on the basis of no allocation of central expenses, it would be possible to reduce the cost per child hour from $1.13 to 94¢. The fact here, too, though, is that, since the nursery school is part of the over-all agency and derives benefits therefrom, it must bear its fair share of over-all expenses, even if it results in higher costs.

3. Services Offered

Another complicating factor in making comparisons of costs per child hour among the several study centers results from differences in services offered. Mill Town and Association, for example, include a social worker on the staff and offer her skill and training to parents for counselling purposes. The cost of this service is reflected in the cost per child hour. Three of the six schools studied (Proprietary, Community Center and Country) provide transportation to and from school for the children who require it; this cost, too, has its impact on the cost per child hour. In addition, Country is the only school which provides daily health inspections by a registered nurse who is a regular staff member.

If costs are controlled for these non-comparable items, it is possible to arrive at revised figures, as follows:

If the salary of the social worker at Mill Town ($3170) is deducted from total operating costs of $46,922.02, leaving a remainder of $43,752 to be divided by 67,424 child hours, the result is a revised cost per child hour of 65¢. At Association we see that if the entire central office allocation, including the salary of the social worker and the three consultants, were deducted from the total operating budget it would result in a cost of 73¢ per child hour, instead of 91¢. But if only the cost of the social worker's salary ($1221.54) is deducted from the total of $40,442.19, leaving a remainder of $39,221 to be divided by 44,520 child hours, a new cost of 88¢ per child hour results.

Similar procedures can be taken with the item of transportation. The cost of transportation at Proprietary ($3515.75) represents about 24% of total operating expenses ($14,944.69). If transportation costs are deducted, leaving a new total of $11,428.94, and this is divided by 56,187 child hours, the cost per child hour becomes 20¢ instead of 27¢.

At Community Center, transportation costs are $3595, or about 14% of the operating budget of $24,815.44. Subtracting transportation costs here, leaves $21,220 to be divided by 22,029 child hours, and results in a revised cost of 96¢ per child hour, instead of the actual cost of $1.13.

Transportation costs at Country ($22,854) represent about 25% of operating costs ($92,976.71), which if divided by 85,464 child hours gives a cost of 82¢ per child hour, as compared to the actual cost of $1.09. If a further deduction of $2000 is made from total operating costs in order to control for the nurse's salary, the cost per child hour can be reduced to 80¢.

If operating costs are then recalculated to control for these non-comparable items, the following revised costs per child hour result:

School	Cost Per Child Hour	Revised Cost Per Child Hour
Full Day:	$	$
Mill Town	.70	.65 (subtract social worker)
Association	.91	.73 (subtract all central office allocation, incl. social worker and 3 consultants)
Proprietary	.27	.20 subtract transportation)
Half Day:		
University	1.94	1.55 (subtract non-comparable items and adjust custodial expense)
Community Center	1.13	.87 (subtract agency allocation and transportation)
Country	1.09	.80 (subtract transportation and nurse)

When these manipulations are made, it can be seen that costs do begin to come closer together, except for Proprietary and University which still set the limits for the lowest and highest unit costs. The results continue to show that half day schools are more expensive to run than full day schools, and that the most expensive program is the smallest, in terms of the number of children served and the number of days the school is open.

4. Rates of Pay

Since salaries represent the major cost of the programs of day care centers, the salary scales paid to personnel are a major factor in determining costs. Information concerning salaries is presented in very summary fashion in Table IX.

If the schools are ranked according to cost per child hour, from highest to lowest, the order is as follows:

School	Cost Per Child Hour
University	$1.94
Community Center	$1.13
Country	$1.09
Association	.91
Mill Town	.70
Proprietary	.27

As can be seen from Table IX, the same order results if they are ranked according to salary scale, except that University and Community Center exchange positions. Although salaries at University for director and teachers are actually higher on a yearly basis than are those for Community Center ($5720 for the director-teacher at University, compared with $4233.99 for the director-teacher at Community Center; $4532 for the teacher at University compared with $2330 and $4090 for the two teachers at Community Center), the lower hourly rate at University results from the greater number of hours per day that staff works there--6½ hours compared with 4 hours.

Higher hourly salary costs at Association help to account for its higher cost per child hour, compared to Mill Town. The salary level at Proprietary is barely above the Mass. minimum wage level and is comparable to the salaries paid at Mill Town and Association to assistants who are primarily responsible for preparing for and cleaning up after activities, but who have no responsiblity in the teach-

TABLE IX

COMPARISON OF COST PER CHILD AND RATE OF PAY FOR DIRECTOR AND TEACHERS PER YEAR, DAY AND HOUR, BY SCHOOL AND EMPLOYEE CATEGORY - 1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Community Center	Country
No. School Days	243	183	249	146	154	162
Avg. No. Hrs. Worked Per Day	9	8	6	6 1/2	4	6
No. Children						
Avg. Attendance	40	34	25	23	48	192
Avg. Enrollment	50	46	30	27	54	220
No. Full Time Teachers	2	3	2	1	2	5
Annual Basis:	$	$	$	$	$	$
Cost Per Child						
Attendance	1173.05	1189.48	597.78	793.26	516.98	484.25
Enrollment	938.44	879.18	498.16	675.74	459.54	422.58
Salary						
Director	6124.95	5484.30	2373.67[a]	5720.00[b]	4233.99[b]	4900.00
Teachers (average)	4794.82	3450.53	2160.00[c]	4532.00	3210.00	2731.56
Daily Basis:						
Cost Per Child						
Attendance	4.87	6.50	2.39	5.33	3.38	2.99
Enrollment	3.87	4.85	2.02	4.70	2.99	2.61

TABLE IX (cont.)

COMPARISON OF COST PER CHILD AND RATE OF PAY FOR DIRECTOR AND TEACHERS PER YEAR, DAY AND HOUR, BY SCHOOL AND EMPLOYEE CATEGORY - 1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Community Center	Country
	$	$	$	$	$	$
Salary						
Director	25.21	29.97	9.53	39.18	27.49	30.25
Teachers (average)	19.73	18.86	8.67	31.04	20.84	16.86
Hourly Basis:						
Cost per child						
Attendance	.70	.91	.27	1.94	1.13	1.09
Enrollment	.55	.69	.23	1.71	1.00	.95
Salary						
Director	2.80	3.75	1.59	6.03	6.87	4.32
Teachers (average)	2.19	2.36	1.45	4.78	5.21	2.81

a) Only 56.8% of Director's time and salary was included. The remainder was excluded because it was considered "Out of Scope" work (see Chapter II, p.38).

b) Director also serves as teacher.

c) Only two-thirds of one of the two teachers' time and salary was included. The remainder was excluded because it was considered "Out of Scope" work.

ing or program areas that require training and skill.

D. SUMMARY OF COST FINDINGS

A comparison of schools indicates that the differences in organizational structure may be a key factor in explaining differences in costs. Half day programs, for example, are more expensive to run than are full day programs. Within each of these categories, the programs that cost more are the ones that are part of a larger administrative set-up. The number of children served and the number of days the school is open also affect the unit costs. An important factor in determining the cost of a program is the salary scale paid to staff, since in each school salaries represent the largest expenditure incurred.

The identification of these sources of variation in unit costs helps to define the problems that would have to be solved if any effort were to be made to standardize the costs of day care services. Such standardization would require the establishment of standards for each of the factors affecting costs. A further discussion of these cost policy issues will be presented in Chapter VI.

CHAPTER IV - FINDINGS: TIME ANALYSIS

In the previous chapter, we have presented the costs of the various centers broken down into their respective functional categories. These costs were determined by combining salary and non-salary expense items, after assigning each of these items to a functional category.

The major technical problem in accomplishing this functional classification was the distribution of salary costs on the part of personnel who performed multiple functions. A time analysis was undertaken for that purpose. In this chapter, the results of the time analysis are presented in detail. The purpose of this presentation is to explain the basis that was used for arriving at the cost figures reported in Chapter III. These time analysis data do not reflect the total distribution of staff time in the center, since they do not include the time of personnel whose functions clearly belonged to one or, at most, two program categories (i.e., a cook), and whose salaries could therefore be assigned to appropriate categories without the use of a time analysis. For a total picture of the distribution of staff time as reflected in total costs, the reader should refer to the data already reported. The staff included in the time analysis for each center is listed below:

FULL DAY PROGRAMS:

Mill Town

Director
Social Worker
Secretary
2 Teachers
4 Assistants
2 Student Teachers*

Association

Director
Social Worker
Secretary
3 Teachers
3 Aides
2 Student Teachers*

Proprietary

Director
2 Teachers (1 terminated mid-November)
1 Teacher-Cook-Driver

HALF DAY PROGRAMS:

University

Director-Teacher
Secretary
1 Teacher
6 Student Teachers*

Community Center

Director-Teacher
4 Teachers
1 Assistant
3 Student Teachers*

Country

Director
Secretary
14 Teachers
34 Student Teachers* (only 1 worked on a regular basis)

Except for special instances noted in the text or tables, the tabulations discussed in this chapter result from observations made during the random day periods.

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*Student teachers were included in the time analysis but not in the calculation of costs, since they are unpaid. See Chapter II.

Table X compares time spent by staff in each of the schools, grouping all employees together. Though this kind of grouping yielded a minimum of sample error, as discussed in Chapter II, there were distortions that resulted from the inclusion of administrators, clerical help, social workers where they were employed, and other non-teaching personnel with teaching staff. Teaching staff included teachers, assistants or aides, and student teachers.

Before analyzing the similarities and differences found summarized in this table, mention should be made of the adjustments to the time analysis results, on the basis of which the percentages were distributed. As discussed in Chapter II, a decision was made to redistribute on a proportional basis all R (personal) activity, so that each program would bear its equitable share of personal time. At a later point in this chapter we shall discuss this matter of personal activity and its cost to the agency, but until then all analyses are being made "without R", or in other words, with R activities redistributed.

Another adjustment was one made to Country School data in order to arrive at a single composite picture of the morning and afternoon sessions. The original assumption had been that morning and afternoon sessions were identical, and so observations were planned only for the afternoon. Experience and the written daily schedules proved this not to be the case, so three morning sessions were added to the ten scheduled observation periods. These three morning observations were then inflated (frequency results were multiplied by 3 1/3) and these results were combined with the results of the ten afternoon observations. New percentages were then calculated on the basis of these new frequency totals.

A third adjustment was to include for University not only the results of the morning observation periods while the children were in attendance, but also the results obtained when the total work-day of the director and teacher was considered (according to them, their regular working period was from 8:30 a.m. to 3:00 p.m. each day, though the children left at 11:45 a.m.). This second tabulation for University, therefore, includes all staff for the morning period but only the director-teacher and the teacher for the afternoon period.

The Not Applicable category included those observed acts that were given impossible codes, or where there was little or no descriptive detail given on the cards on the basis of which coding might be done, as well as those acts that were coded Special C as being out of scope or not related to the particular school being studied. The places at which Special Code C was applicable were the central office of the federation to which Association belonged, in order to determine an allocation of time and money to Association School, Country in-so-far as work was being done in preparation for their summer day camp program, Proprietary where the director also conducted a second program at another location, and Community Center, only for the executive director of the agency who was interested in learning how much of his time was involved with the nursery school. Since all employees are grouped together in these tabulations, less than 5% of total time spent in any of the schools falls into the NA category. For cost purposes, separate calculations were later made for appropriate personnel in order to allocate a portion of their salary to their respective schools, and the NA percentages were then redistributed proportionately over the other activity categories.

TABLE X

COMPARISON OF TIME DISTRIBUTION OF OBSERVED ACTS, WITHOUT "R"
ALL EMPLOYEES - EACH SCHOOL

	FULL DAY PROGRAMS			HALF DAY PROGRAMS				
	Mill Town	Association	Proprietary	University		Community Center	Country	
No. Staff in Time Analysis	12	13	5	A.M. 9	A.M.+P.M. (P.M.) (2)	13	43	
Activity Category	%	%	%	%	%	%	%1)	%2)
A (Admissions)	3.2	3.6	.3	2.3	2.5	.9	.4	.3
B (Transp.)	.2	1.2	16.5	-	.2	5.2	5.4	5.7
C (Counselling)	3.6	2.2	-	3.3	4.3	.9	.6	.5
D (Child Care)	21.4	24.3	31.4	11.3	6.1	11.2	14.9	12.6
E (Nutrition)	9.8	12.7	27.2	6.8	3.9	8.0	7.4	7.9
F (Health)	.6	.2	.8	.6	.3	1.4	1.1	1.2
G (Education)	39.7	36.9	14.8	54.3	43.3	59.2	58.7	60.7
H (Parent Meetings)	-	.5	.3	.8	.7	1.1	.7	.9
I (Student Training)	.1	1.1	-	2.4	11.0	.7	1.0	.6
J (Research)	2.1	.7	-	5.9	6.5	.2	.3	.2
K (Community Activities)	2.4	.2	-	4.7	8.7	-	.5	1.0
Q (Admin.)	16.8	15.9	4.8	7.6	12.3	6.7	6.8	6.4
NA3)	-	.5	3.9	-	.2	4.5	2.1	2.0
Total No. Observed Acts, Minus R	826	835	357	488	904	1224	1948	2949

Note:
1) Observed Acts: 10 afternoon + 3 morning sessions
2) Adjusted to give composite picture of 10 morning and 10 afternoon sessions
3) Not Applicable

By taking each of the activity categories separately, the following comparisons can be made:

The proportion of time spent on admissions work (A) at the different centers seems to be directly related to the proportion of time spent in parent counselling (C). What is interesting here is that University which does not include a social worker on its staff spends proportionately as much time (about 2%) on these activities as do Mill Town and Association (about 3%) where there is a social worker. The other schools, it would seem, spend almost no time screening applicants, presumably taking them on a first come, first served basis which does not require any special skill or training or time on the part of staff.

The schools spending considerable proportions of time on transportation activities (B) are those that provide transportation to the children. The disproportionately large amount of time spent by Proprietary on this activity (16.5%) would seem to result from the fact that of the four staff members, two are drivers in addition to their other responsibilities, whereas at Community Center (5.2%) the driver performed no other duties at the school and was therefore not included in the time analysis, while at Country (5.7%) eight out of the 14 drivers were not part of the time analysis for the same reason. The time spent at Association on transportation (1%) reflects the time spent by staff with children waiting to be picked up at the end of the day.

The proportion of time spent on Child care activities (D) points up almost more than anything else the difference between full day and half day programs. The greater amount of time spent on this activity by staffs in full day schools (20-30% compared to about 11% in half day programs) results from the longer nap period scheduled for the children (two hours instead of 15-30 minutes, or none for the older children at Country). The fact of the longer day also means that hands get washed more frequently and children get toileted and dressed more often. At Proprietary where some of the children are younger than anywhere else, additional staff time has to be spent in diapering and other baby-care activities.

The extent of nutritional activities (E) also differentiates full day and half day programs. The full day programs serve a hot lunch which is supervised by the teachers and which is more time-consuming than a mid-morning or mid-afternoon snack, and also serve juice after nap time. The high percentage of time spent at Proprietary on nutrition (27% compared with 9% and 12% at the other full-day programs) probably results from the inclusion in the time analysis of the cook who also served as an assistant and driver. The cooks at Mill Town and Association were not included in the time analysis since cooking was their only responsibility. At the half-day schools, 7-8% of staff time is spent preparing, serving and cleaning up after snacks.

Little time is spent by most of the schools on health care (F), for the most part less than 1%. At Country the staff included a full-time registered nurse, but since she performed no other duties, she was not included in the time analysis.

The proportion of time spent on educational activities (G) seems to be greater in the half-day programs than it is in the full day programs, largely because of the differing length of the day and the fact that the afternoon in the full day program is devoted for the most part to nutrition and child care, with only a limited amount of educational activity. Most of what has been defined as education takes place during the morning hours when the children are alert and active. Afternoon programs tend to pattern themselves more to the child's usual routine which generally includes a nap after lunch. This is borne out by the program at Country which in the morning session calls for a 10-15 minute rest period in connection with the serving of a mid-morning snack, and in the afternoon calls for a rest period of at least one-half hour. The interplay between child care (D) and education (G) is indicated here in the comparison of percentages between the observed acts which were predominantly in the afternoon and the adjusted distribution which tried to equalize morning and afternoon sessions.

The percentage distributions for educational activities at the half day schools are similar (54-60%), with University running a little low, probably as a result of the fact that in a small staff the activities of the secretary and the administrative activities of the director-teacher would tend to understate the extent of educational activity actually taking place. The small proportion of time spent on educational activities at Proprietary (under 15%) compared with the time spent on child care (31%), nutrition (27%), and even transportation (16.5%) may in some part be the result of the multi-responsibilities of a small staff as picked up in a time analysis procedure which concerns itself with what the staff is doing at particular moments, and not necessarily with what is happening to the children at those moments. As a matter of fact, however, this percentage of time spent on educational activity is probably an overstatement of the reality since the coding scheme made it possible to code "watching television" (an activity found, by the way, in no other school) as education, though there may not have been any educational content in the program being watched. The staff of both Mill Town and Association seem to spend similar proportions of time (about 40% and 37% respectively) on educational activities.

The next group of activities (H-K) do not directly involve the children and, if staff spend any time at all in these areas, it is usually not on a regular day-to-day basis. It may, therefore, have been harder to capture these activities by the time analysis procedure devised for this study.

The only school that does not spend any time at all on parent group activities (H) is Mill Town. The explanation given there is that most of their parents-mothers as well as fathers - work all day and are too tired in the evenings to attend meetings. If any special problem arises with any child, then special arrangements are made with those parents to meet with the teacher or social worker. In the other schools, less than 1% of the observed time was spent in this activity.

Student training (I) is part of staff responsibility wherever student teachers are used. The only school that uses no student teachers is Proprietary. This kind of training is usually the responsibility of the director, or a head teacher. Grouping all employees together, therefore, probably does not result in a very accurate estimate of the extent of this activity for the people directly involved. The range here is from .1% at Mill Town to 2.4% at University.

Research activities (J) represent a small time investment in most schools, and usually reflected work being done in connection with this study at the moment of observation. Since University is a laboratory for a university psychology department, considerable time (5.9%) is spent by the director and teacher with students who are doing research for course papers.

Community activities (K), to the extent that they are usually primarily the responsibility of the director, would be understated in tabulations that group all employees together. The director of University not only teaches a college-level course elsewhere, but is active in a number of community organizations and is often called on to speak, lead discussions, and moderate panels. For all University employees grouped together, however, 4.7% of their time is spent in the community. The director of Mill Town is also active in local affairs and serves on a number of community committees, but 2.4% of all staff time is spent on community activities.

Administrative activities (Q) as defined for the time analysis could be done by any staff member, so the distortions that may exist in other categories as a result of grouping all employees together, probably do not exist here. Staff working in the half day schools spend about 6-7% of their time on administrative matters, compared with about 16% in the full day programs. Since these tabulations are all based on "minimum Q" (which means that, wherever possible, administrative activities have been allocated to an appropriate functional category and what is left are those activities which are "pure" administration, or at least not allocable to any other function) this may in fact be an understatement of administrative activity. The small amount of time (4.8%) spent on administration at Proprietary may have been one of the factors contributing to the lack of orderliness of records and other information sought by project staff.

In general, the full day programs as represented by Mill Town and Association seem to have their staff time allocated in similar ways. The time distribution at Proprietary, though dissimilar, may possibly be typical for schools of its genre--but this we have no way of knowing. The half day programs, too, at least as far as can be determined from the time analysis, distribute their staff time in similar fashion, with staff at University spending more time than any other on student training, research, and community activities.

At University, it is interesting to see the direction of change in the time distribution when a comparison is made of staff time spent during the morning hours when children are present and staff time (particularly the director-teacher and teacher) spread over the entire work day. Activities that directly involve the children obviously account for more staff time when only the morning is considered, and for less time when the whole work day is taken into account. There is a sharp rise in time spent on student training (I), research (J), community activities (K) and administration (Q) when afternoon work is added to the morning activities. One of the things that differentiates this school from the others is that the director and teacher are expected to participate in such activities, and their higher salaries reflect this expectation.

The time analysis results show clearly that the major expenditure of time on the part of staff is in the categories of education (G), child care (D), nutrition (E), and administration (Q). As was seen in

Chapter III, these activities also account for the major part of total costs. Together, these four activities account for over 80% of staff time at most schools as shown in Table XI:

TABLE XI

COMPARISON OF PER CENT OF TIME SPENT ON EDUCATION, CHILD CARE, NUTRITION, AND ADMINISTRATION AT EACH SCHOOL, FOR ALL EMPLOYEES GROUPED TOGETHER--

	FULL DAY PROGRAMS			HALF DAY PROGRAMS			
	Mill Town	Association	Proprietary	University		Community Center	Country
				A.M.	A.M.+ P.M.		
Activities	%	%	%	%	%	%	%
G (Education)	39.7	36.9	14.8	54.3	43.3	59.2	60.7
D (Child Care)	21.4	24.3	31.4	11.3	6.1	11.2	12.6
E (Nutrition)	9.8	12.7	27.2	6.8	3.9	8.0	7.9
Q (Administration)	16.8	15.9	4.8	7.6	12.3	6.7	6.4
Total	87.7	89.8	78.2	80.0	65.6	85.1	87.6

This table shows how similarly time is spent at the schools within each school category except for Proprietary, and also the direction of change in time distribution that occurs at University when the afternoon portion of the work day is added to the morning portion.

Though there is a higher level of sample error if we look at the separate employee groups, it may be worthwhile nonetheless to see how the different groups spend their time at the several schools. It must, however, be clearly understood that these time distributions are not at all to be taken as accurate data, and final conclusions cannot be made on the basis of these data. Table XIV shows the separate time distribution of observed acts at each school for the director, teachers, assistants, and student teachers. The Table in Appendix IV gives the level of sample error associated with each of these employee groups and must be used in order to interpret properly the results discussed below.

Except for the directors, employee groups spend their time in similar ways in most of the schools. Student teachers, for example, spend most of their time in educational activities (G) and the rest of their time helping out with child care (D) and nutrition (E). At both University and Country over 10% of the time is spent in student training activities (I).

The employee category "assistant" needs some clarification. At Country, each class had a head teacher and an assistant teacher. These roles were often changed in the afternoon and there seemed to be no real difference in either status or responsibility between the two. For this reason, it was decided to code all paid teaching personnel there as teachers. At both Mill Town and Community Center, assistant teachers were primarily responsible for helping with the educational activities (G), but also had some responsibility for child care (D) and nutrition (E). At Association, however, the assistants were really aides who were hired

TABLE XII

TIME DISTRIBUTION OF OBSERVED ACTS, BY EMPLOYEE GROUP FOR EACH SCHOOL AND ACTIVITY, MINUS R

A. DIRECTOR

	FULL DAY PROGRAMS				HALF DAY PROGRAMS				
	Mill Town	Association	Proprietary 1)		University		Community Center 2)	Country 3)	
					A.M.	A.M. + P.M.		Observed	Adjusted
Activities:	%	%	%	%	%	%	%	%	%
A (Admissions)	1.9	7.3	-	-	2.9	4.0	7.6	1.7	.8
B (Transport.)	-	2.4	10.5	18.5	-	-	4.9	1.7	.8
C (Parent Counseling)	1.0	3.7	-	-	7.8	5.0	3.5	1.7	2.5
D (Child Care)	-	2.4	13.5	23.8	13.6	5.0	7.6	-	-
E (Nutrition)	1.0	1.2	13.1	23.1	1.9	1.4	2.8	-	-
F (Health)	1.0	-	2.3	4.0	1.9	.7	6.9	-	-
G (Education)	5.8	24.4	10.1	17.8	43.7	27.7	28.5	21.7	14.6
H (Parent Meetings)	-	1.2	.4	.7	1.0	.7	9.0	5.0	8.1
I (Stud.Train'g	-	4.9	-	-	1.9	8.6	1.4	-	-
J (Research)	8.6	2.4	-	-	9.7	9.4	.7	1.7	.8
K (Community Activities)	17.3	2.4	-	-	2.9	19.1	-	13.3	22.0
Q (Administration)	63.4	47.6	6.9	12.1	12.6	18.4	26.4	45.0	39.0
N.A. 4)	-	-	43.2	-	-	-	-	8.3	11.4
Total No. Acts Minus R	104	82	89	76	103	278	144	60	123

1) The Director actually spends 56.8% of her time on matters pertaining to Proprietary, the rest on her other school. The first columnn shows this. The second column shows the time analysis tabulations recalculated on this base of 56.8%.

2) Though both the Nursery School Director and the Agency Director were included in this employee category, only the Nursery Director's tabulations are being used here.

3) Both the actual time analysis tabulation (based on 10 afternoon & 3 morning sessions) and the adjusted tabulations (to give composite picture of 10 morning and 10 afternoon sessions) are given.

4) Not Applicable - at Country, applies to work done in Spring for Summer Camp Program.

B. TEACHERS

	FULL DAY PROGRAMS			HALF DAY PROGRAMS				
	Mill Town	Association	Proprietary	University		Community Center	Country	
				A.M.	A.M+P.M		Observed	Adjusted
No. Teachers	2	3	2	1 1)	1	4	14	
Activities:	%	%	%	%	%	%	%	%
A (Admissions)	3.0	-	.7	1.0	1.8	-	-	-
B (Transport.)	.5	1.8	.7	-	.4	6.9	6.1	6.4
C (Parent Counseling)	1.0	-	-	4.0	7.5	1.0	.5	.3
D (Child Care)	27.9	32.4	35.0	12.0	4.3	13.1	16.8	13.9
E (Nutrition)	10.9	11.1	40.4	8.0	2.9	7.6	8.5	8.8
F (Health)	1.0	.4	-	-	-	1.0	1.2	1.2
G (Education)	51.2	45.3	20.5	63.0	46.7	68.6	64.4	66.2
H (Parent Meetings)	-	-	-	-	.4	-	.6	.7
I (Stud.Trang)	-	-	-	2.0	12.1	.7	-	-
J (Research)	.5	1.4	-	3.0	6.1	.3	.1	.1
K (Community Activities)	-	-	-	3.0	3.2	-	-	-
Q (Admin.)	4.0	7.6	2.0	4.0	13.9	.8	1.2	1.0
N.A 2)	-	-	.7	-	.7	-	.6	1.4
Total No. Acts, Minus R	201	278	151	100	280	582	1569	2403

1) Though there are two teachers here, only 1 was included in the teacher employee group--The other, a director-teacher, was placed in the director category, as was the director-teacher at Community Center.

2) Not Applicable

C. ASSISTANTS

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill-Town	Association	Proprietary	University	Community Center	Country
No. Assistants	4	3	1[1]	0	1	0
Activities:	%	%	%	%	%	%
A (Admission)	-	-	-		-	
B (Transp.)	-	.4	32.4		4.1	
C(Parent Counseling)	-	-	-		-	
D (Child Care)	32.7	38.2	39.9		10.4	
E (Nutrition)	14.7	27.0	17.6		15.9	
F (Health)	.3	-	.9		-	
G (Education)	50.0	34.4	8.3		68.2	
H (Parent Meetings)	-	-	-		-	
I(Stud.Training)	.3	-	-		.7	
J (Research)	-	-	-		-	
K (Community Activities)	-	-	-		-	
Q (Administration)	2.0	-	.9		.7	
Total No. Acts, Minus R	306	233	108	0	144	0

1) This person was not an assistant in the same sense that the others were, but was a necessary adult in terms of the supervision of the children. Her additional responsibilities were those of cook and driver.

D. STUDENT TEACHERS

	FULL DAY PROGRAMS			HALF DAY PROGRAMS				
	Mill Town	Association	Proprietary	University A.M.	University A.M.+ P.M.	Community Center	Country Observed	Country Adjusted
No. Student Teachers	2	2	0	6		3	34 1)	
Activities:	%	%	%	%	%	%	%	%
A (Admissions)	-	-		-	-	-	-	-
B (Transport.)	1.0	-		-	.4	4.2	1.7	2.2
C (Parent Counseling)	-	-		-	-	-	-	-
D (Child Care)	21.4	20.0		13.3	10.4	13.3	15.2	16.5
E (Nutrition)	13.3	11.8		10.5	8.1	10.3	6.7	7.1
F (Health)	-	1.2		-	-	.4	.8	.6
G (Education)	64.3	58.8		74.3	67.4	71.0	62.2	63.7
H (Parent Meetings)	-	-		-	-	-	-	-
I (Student Training)	-	2.3		1.9	13.7	.8	12.6	8.2
J (Research)	-	-		-	-	-	-	-
K (Community Activities)	-	-		-	-	-	-	-
Q (Administration)	-	5.9		-	-	-	-	-
N.A. 2)	-	-		-	-	-	.8	1.7
Total No. Acts, Minus R	98	85	0	210	270	262	119	182

1) Only 1 student worked regularly, 4 mornings a week; the rest worked or "observed" about 1/2 day a week but all were included in the time analysis.

2) Not Applicable

to relieve the teachers of some of their housekeeping chores. Although one-third of their time was seemingly spent in educational activities (G), a check of the specific activity codes reveals that this was, for the most part, work done either in preparation for or in cleaning up after the actual activity.

A special numbered code accompanied each functional category to indicate insofar as possible precisely what was being done at the moment of observation. It was therefore possible to note the time sequence of the activity and, in other categories, to indicate with whom the activity was being conducted--parent, child, staff or consultant. Most of the coding problems encountered in the time analysis resulted from the use of these specific activity codes, and in the final tabulations they were eliminated and only the broad functional categories used. While the specific activity codes are too detailed to contribute materially to cost analysis, they may be useful for internal management purposes in evaluating use of staff time. They are, therefore, listed in the Time Analysis Manual which constitutes Part II of this report.

Some of the differences that appear among the several directors may be accounted for in part by the fact that two are actually director-teachers, at University and Community Center. The rough estimate made by the director-teacher at University that about 1/5 of her time was taken up with administrative matters, is corroborated by the time analysis which shows that 18.4% of her time is spent on administration. At Community Center, about 1/4 (26.4%) of the director's time is spent on administration.

The director at Proprietary transports some of the children herself to and from the schools she directs, so a considerable portion of her time is spent in this way. When she is at Proprietary, it can be seen that she divides her time rather equally between child care, nutrition, and education. The large proportions of time spent by non-teaching directors on educational activities is better understood after checking the specific activity codes. Although sometimes a director may, in an emergency situation, take a teacher's place temporarily, the specific activity codes showed that most of their educational activity consists of consultation on some educational problem, writing or checking progress reports about the children, or taking care of some administrative task relating to education.

The directors at Mill Town, University and Country are heavily engaged in community activities (17.3%, 19.1% and 22.0% respectively). At both Mill Town and Country there seems to be a concern for developing a favorable image on behalf of the school, and it therefore may seem to be a worthwhile investment of time. At University there is a concern to share experience and to help wherever possible in making nursery education more professional, as well as in raising standards of operation.

When the time analysis procedures were being established, there was recognition of the fact that people do not work every single moment of the working day, that time is spent by staff on personal kinds of activities sanctioned by current social practices, standards and laws. Some of these personal activities are of a casual nature, including arriving late, leaving early, informal conversations with co-workers, vendors, or parents that are not related to any business matters; some involve attending to personal affairs during working hours; some are formally recognized, like time taken for lunch, rest periods, sick leave and vacation. A special code (R) made it possible to measure the extent of such personal activities for each employee category in each of the schools observed, as shown in Table XIII.

TABLE XIII

DISTRIBUTION OF TIME SPENT ON PERSONAL ACTIVITY (R), BY EMPLOYEE CATEGORY FOR EACH SCHOOL, BASED ON TIME ANALYSIS, - 1964[1]

	FULL DAY PROGRAMS			HALF DAY PROGRAMS				
	Mill Town	Association	Proprietary	University		Community Center	Country	
				A.M	A.M.+P.M.		Observed	Adjusted
	%	%	%	%	%	%	%	%
DIRECTOR	28(144)[2]	27(112)	20(111)	7(111)	23(359)	9(158)	51(123)	35.6(190)
TEACHERS	27(274)	23(361)	3(156)	9(110)	23(361)	8(632)	7.5(1696)	7.1(2588)
ASSISTANTS	15(361)	19(288)	9(118)	- -	- -	7(155)	- -	- -
STUD.TEACHERS	4(102)	5(90)	- -	17(253)	14(313)	6(278)	3(123)	3.2(188)

[1] For level of sample error associated with this, see Table in Appendix IV.

[2] Numbers in parentheses are total number of observed acts for each employee category.

The small proportion of time spent on personal activity at Proprietary is undoubtedly the result of a small staff with no second line of ancillary help, like assistants or student teachers, to offer respite and relief during the day. Although five people were included in the time analysis, two of them were very short-term personnel---one left shortly after the time analysis began, and the other was hired just before the time analysis ended---one was the director who was not regularly at the school, and only two adults were actually present all day with the children, one of whom was also a cook and a driver.

The range of time spent on personal activity is from 3% to 51%, with directors at every school spending proportionately more time on personal activities than any other employee group. These findings must be treated with great caution, since there is serious question as to the accuracy of the coding in this category. The extent of misunderstanding or bias on the part of the observer in coding activities that were not clear-cut is difficult to guage, but it is known that coders had particular problems with situations where informal staff conversations took place while other activities were going on, or where parents chatted casually with staff during the time they picked up or delivered their children.

The extent of personal activity seems greater at the full day schools than at the half day schools, and it is interesting to see the increase in such activity at University when the afternoon work period is added to the morning session. There is a negligible difference at Country between the observed acts and the adjusted totals that take into account both morning and afternoon sessions. Though some teachers at Country worked a full day, their break for lunch and rest came at a time when no observations were being made and so is not reflected in the time analysis. At both Mill Town and Association, teachers are given time for a rest period during the children's nap time, and this was captured in the time analysis.

Table XIV shows the time distribution of observed acts at each school, if personal activity is included for all employees grouped together. It can be seen that personal activity ranks second to education, in terms of the proportion of total staff time spent.

TABLE XIV

COMPARISON OF TIME DISTRIBUTION OF OBSERVED ACTS, WITH R - ALL EMPLOYEES AT EACH SCHOOL -

	FULL DAY PROGRAMS			HALF DAY PROGRAMS				
	Mill Town	Association	Proprietary	University		Community Center	Country	
				A.M.	A.M.+P.M.		Observed	Adjusted
No. Staff in Time Analysis	12	13	5	9	(P.M.-2)	13	43	
Activity Category:	%	%	%	%	%	%	%	%
A (Admissions)	2	3	*0	2.0	2	1	*0	.3
B (Transp.)	*0	1	15	-	*0	5	5	5.1
C (Parent Counselling)	3	2	-	2.8	4	*0	1	.5
D (Child Care)	17	19	28	9.7	5	11	13	11.4
E (Nutrition)	8	11	25	5.8	3	7	7	7.1
F (Health)	1	*0	1	.5	*0	1	1	1.0
G (Education)	31	30	13	46.6	35	54	52	54.6
H (Parent Meetings)	-	*0	*0	.7	*0	1	*0	.8
I (Stud.Train'g)	*0	1	-	2.1	9	1	1	.6
J (Research)	2	*0	-	5.1	5	*0	1	.2
K (Community Activities)	2	1	-	4.0	7	-	*0	.9
Q (Admin.)	13	12	5	6.5	10	6	6	5.8
R (Personal)	21	20	9	14.2	20	11	11	9.9
N.A.1)	-	*0	4	-	-	4	2	1.8
Total No. Observed acts	1040	1033	396	569	1129	1346	2191	3274

*0-Less than 1%

1) Not Applicable

Because personal activity represents such a large portion of total time and because it was difficult to determine just how much of this was accurately coded, it was decided to redistribute all R codes so that all the other activity categories would bear their equitable share of personal activity. In addition, since staff is paid to do a job and not for personal time spent on the job, it was felt that salaries should be allocated on the basis of productive activities, and so the cost of personal activity has been spread proportionately over the other functional categories. The cost of personal activity, however, before it is spread over the other categories is shown for all employees at each school in Table XV.

TABLE XV

COST OF PERSONAL ACTIVITY (R), BY SCHOOL FOR ALL EMPLOYEES - 1964

	FULL DAY PROGRAMS			HALF DAY PROGRAMS				
	Mill Town	Association	Proprietary	University		Community Center	Country	
				A.M.	A.M.+ P.M.		Observed	Adjusted
%R Activity	21.0	20.0	9.0	14.2	20.0	11.0	11.0	9.9
Total No. Observed Acts	1040	1033	396	569	1129	1346	2191	3274
Total Am't Salaries Included in Time Analysis	$ 30,273.32	$ 23,868.63	$ 11,043.67	$ 11,196.00		$ 12,957.14	$ 45,386.56	
Cost of R Activity	6357.40	4773.73	993.93	1589.83	2239.20	1425.28	4992.52	4493.27

SUMMARY

A time analysis was undertaken in order to have some basis on which to allocate the salaries of staff. Since staff salaries represent anywhere from 60-80% of total operating expenditures, the need for some such method of analysis is clear if there is any interest in investigating the source of variation in costs of programs. The feasibility of this particular method of time analysis will be discussed in the final chapter of this report.

The findings that resulted from the use of random moment sampling showed that between 10-20% of the time of all employees grouped together was spent in some kind of personal activity. Because there was some question of the accuracy with which this code was used and because, in any case, salaries are presumably paid for productive activity, it was decided to redistribute all personal activity codes over the other functional categories.

In order to maintain a low level of sample error, the tabulations used were those for all employee categories grouped together. This meant that non-teaching staff was included with teaching staff and that a clear picture of differential staff responsibilities does not readily emerge. The use of the Guide Table in Appendix VI does make it possible to get some idea of the possible variations among different staff groups, if allowance is made for certain levels of sample error.

For all employees grouped together, however, it was seen that between 80-90% of their time was spent in four activities: education, child care, nutrition, and administration. At University, the percentage of time devoted to these activities decreased to 65% when the total working day was considered for the director-teacher and teacher. At all the schools except Proprietary, education and child care activities, in that order, were the most time-consuming. It becomes difficult under these circumstances to make a strong case for differences between full day and half day programs, at least in terms of anything other than length of the program day.

CHAPTER V - COST AND CLIENTELE

A discussion of costs of pre-school programs for children would seem to be incomplete without some information about the families using these services. In order to get a more rounded picture of the several programs cooperating in this cost analysis, and to see if any connection might be established between cost and clientele, a small scale socio-economic study was undertaken. Toward this end, further cooperation was obtained from five of the directors for sending out a questionnaire to families. Because some feeling was expressed by some of the directors about the possible reluctance of parents to answer personal questions about income and other such matters, anonymity was guaranteed and a coding system was devised to enable project staff to tell which school the returned questionnaires came from. The director at Proprietary was the only one who absolutely refused to cooperate, on the grounds that she did not want her parents bothered. Her hostility was particularly directed toward a question about parental satisfaction with the school selected for their child, and assurances that this question would be deleted from her questionnaires failed to win her over. Some information about the parents at Proprietary was available from certain records and this information was used for comparative purposes, whenever possible.

Of a total mailing of 584 questionnaires sent to families of currently (1965) enrolled children and those to be enrolled the next year, 455 were completed and returned. This represents an overall response rate of 77%, which includes the following response rates for each school:

SCHOOL	NO. SENT	RESPONSE RATE %
Full Day:		
Mill Town	47	68
Association	63	94
Half Day:		
University	41	88
Community Center	103	86
Country	330	71

The high rate of return at Association is probably attributable to the fact that the part-time social worker helped the mothers fill in the questionnaire as part of the regular procedure for making application for the coming year.

For purposes of this analysis, full day programs are the day care centers and half day programs are nursery schools. On the basis of the information obtained from respondents, the following brief summaries can be made for each school:

FULL DAY PROGRAMS:

Mill Town

The parents at Mill Town seem to be predominantly working class people, with fairly stable incomes ranging downward from $6,000 annually for about 53% of the families. The women seem to be better educated than the men and in greater numbers to hold jobs that might be classified as white collar. About 50% of the women said they had gone on to college, compared to about 34% of the men. About two-thirds of the parents are married and living together, with almost one-quarter of the families having 5 or more children, and most having three or fewer children. One-third of the fathers are 40 years of age or older; 53% of the mothers are between 30-40 years of age. Most of the families are Catholic and most of the women work, 50% full-time and nearly 20% part-time. The main reason checked for sending the child to school was the fact that the mother was employed.

Association

With rare exception, the parents of Association children are Negroes living in low-income housing developments. Only about one-half of the families are intact, with both parents living together. The parents at this school are younger than any of the other parents, with most of the women aged 30 years or younger, and most of the men under 35 years of age. The educational attainments of these parents are lowest, with slightly more than 10% of either parent going on to college, and almost none being graduated.

About three-quarters of the mothers do not work outside the home, but the usual occupation for those who did work at any time was more often in the white collar category. The men show an unemployment rate of about 17%, over four times greater than the average unemployment rate of 4.1% for the Boston area in 1965,1) and most of the jobs held would be considered blue collar, mostly factory work. Only about one-half of all the family incomes, which for almost 90% is under $6000, comes from salary or earnings, with over 30% coming from Aid to Families of Dependent Children (AFDC).

About 40% of the families have only 1 or 2 children, with 20% having 5 or more. The most frequently checked reasons for sending the child to school were: in order to prepare him for public school, because he had no place to play, and because he had no one with whom to play.

Proprietary

The only data available on families here were obtained from the Health Record-Enrollment Form, required by the Boston Health Department. According to this, there were 30 families sending a total of 31 children. Of these, presumably 25

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1) Statistical Tables on Manpower, A Reprint from the 1966 Manpower Report, (Washington, D.C.: U. S. Department of Labor, Manpower Administration), Table D-5, p. 210.

might be considered intact families (on the basis of entries being made for father's occupation and business address), or about 80%. Almost all of the mothers here work (90%) and their jobs are equally distributed between the white and blue collar categories. Very few of the men are in white collar jobs, with almost all of them working in blue collar jobs.

The major reason for sending the child to school is the fact that both parents are working. Proprietary, like Association, draws almost exclusively from a Negro population.

HALF DAY PROGRAMS:

University

Families whose children attend University School have some kind of University affiliation, either as student or as employee. About 25% were born in some country other than the United States, and only about one-half have lived in Massachusetts from more than 5 years. These families also represent the greatest variety of religious belief--47% are Jewish, 17% Protestant, 3% Catholic, and the rest either claim no religion or have a religious belief common to their ethnic origins. Almost all of the children come from homes where both parents are living together, with less than 3% coming from homes where there has been a divorce.

Most of the mothers are between 30-40 years of age, almost all of them have gone to college and over 40% have continued to graduate school. Of the 30% who are currently working, 5% are working full-time and 25% working part-time. All the women here who have ever worked have done so in some kind of professional capacity.

Most of the fathers are over 35 years of age, and almost 70% have received graduate degrees, with an additional 14% currently engaged in graduate study.

Except for these students, all fathers were employed full time, almost all of them in teaching or research jobs. Income was derived either from salary or fellowships and for 70% of the families was in the range of $10,000 or over.

Most families reported having 2 or 3 children, and no one had more than 4. Here, too, the reasons that were checked most often for sending a child to school were that the child had no one to play with and that there was the wish to prepare him for public school.

Community Center

Families sending their children to the Nursery School at the Community Center are predominantly Jewish (over 90%). With the exception of one widow, all parents are married and living together. Most of the women are between 25-35 years of age and almost three-quarters listed themselves as housewives. About 19% said that they were working, 2% working full-time and 17% working part-time--all in white collar jobs, which for the most part were professional. All the women had completed high school, with over 95% going on to college, of whom 30% went on to graduate study.

Most of the fathers were over 35 years of age, almost all of whom had gone to college, with 64% going on to get a graduate degree. Except for a very few current students, all the fathers were employed full-time in white collar jobs, either in business or the professions. Family income, derived from salary or fees, ranged upwards of $10,000 a year for 70% of the respondents. About 9% of the families claimed incomes under $6,000.

Families tended to be small, with most having 2 children and only 1% having more than 4. One of the most common reasons checked for sending the child to school was that there was no one for him to play with; the next reason most often checked was the desire to prepare the child for public school.

Country

Country families, like the other nursery school families, are intact with both parents living together. About 60% are Jewish, 25% Protestant, and the rest about equally divided between Catholic and other religious persuasions.

Over two-thirds of the mothers are between the ages of 25-35, with almost all of them having gone to college and over 25% going on to graduate study. About 15% of the respondents said that they worked, 3% full-time and 12% part-time. Of the 30% who said that they had ever worked, almost all of them had held some kind of white collar job, mostly of a professional nature.

Most of the fathers here were over 35 years of age, with 25% of them 40 or over. About 65% of them went on to graduate school, 58% getting a graduate degree. Almost all are employed full-time, with 2% employed part-time and 4% students, in occupations that were for the most part either professional or business. Family incomes, derived from salaries or fees, were high, with over 80% of the respondents reporting income of $10,000 or more. About 5% reported incomes under $6,000.

About half the families here have 1 or 2 children, with about 5% having 5 or 6. Most respondents checked as reasons for sending their child to school the desire to prepare the child for public school and the fact that he had no one to play with.

Table XVI shows in more graphic form some of the similarities and differences among the six schools. Not only is it interesting to compare the full day programs with the half day programs, but evev more revealing are the comparisons within

TABLE XVI

SUMMARY OF SOCIO-ECONOMIC DATA FOR RESPONDENT FAMILIES[1] IN EACH SCHOOL

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary[2]	University	Community Center	Country
	N[3]=32	N=59	N=0	N=36	N=89	N=239
	%	%	%	%	%	%
Parents Married & Living Together	68.8	54.2	80.0	97.2	98.9	97.5
Attended College						
Mother	50.1	22.1	-	91.8	94.1	95.0
Father	34.4	22.1	-	94.5	96.5	96.3
Mother is Full-time Housewife	15.6	55.9	3.0	58.3	67.4	67.4
Employed						
Mother	68.8	17.0	90.0	30.6	19.1	14.6
Father	71.9	61.0	73.3	86.1	95.5	94.2
Normal Occupation is White Collar						
Mother	59.4	23.8	50.0	41.7	31.5	30.1
Father	34.4	8.5	10.0	88.9	96.7	94.1
Combined Family Income						
Under $6,000	53.2	88.1	-	11.1	8.9	5.8
Over $10,000	12.5	1.7	-	69.4	70.8	81.6
No. Children						
Less than 3	37.5	40.7	74.2	58.3	60.6	53.1
5 or more	25.0	20.4	0	0	1.1	4.6

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[1] Questionnaires were sent to families of both currently enrolled children (1964-65) and children who would be enrolled the next year.

[2] Information obtained from Health Record-Enrollment Form.

[3] N= Number of questionnaires returned.

these two broad categories. A caution must again be given, however, that these data apply only to the respondents, and that information about parents at Propietary is derived only from the Health Record-Enrollment Form required by the Boston Health Department for licensing purposes.

The items on the basis of which comparisons are being made were defined as follows: "attended college" includes all those who ever attended college, whether or not they were graduated, as well as those who were, at the time of the study, currently at school. "Employed" includes those who, at the time of the study, were employed on either a full or part time basis. When respondents were asked to list their usual occupation, it was defined as the work they usually did, whether or not they were currently employed. These occupations were then categorized as follows: professional, business, clerical, housewife-student, craftsman, factory worker, laborer, and service worker. "White collar employment" includes the professional, business, and clerical categories.

Keeping in mind these definitions, as well as the limitations of the study, the following general tendencies can be noted:

If one looks only at the half day programs, it is difficult to see much that in any way distinguishes one school from another--it is the similarities rather than the differences that are striking. The only difference that is apparent is the greater number of working mothers among University families.

On the whole, the differences that emerge seem to be between the full day programs and the half day, with some interesting differences also suggested within the full day category. On an overall basis, the families of children in the half day nursery schools would appear to be more stable (i.e., parents living together), to be better educated, to be employed at significantly higher paying jobs, and to have fewer children.

Among the full day programs, no two can be said to be similar. On the basis of the data available, it seems that the parents at Proprietary have the greatest marital stability, that the mothers here are employed to an extent unmatched by any of the other schools, and that these families have the fewest number of children. No information was available on family income or education.

The families at Association seem to be the least stable and to have the lowest incomes. Both Mill Town and Association respondents have the largest families, with 25% and 20% respectively having five or more children. In response to a question about major source of family income, over 90% of all half day school respondents as well as Mill Town respondents said their income was derived from salary or earnings. Only about 52% of Association respondents listed these as major sources of income, but about one-third were getting AFDC help, 5% received alimony payments, and another 5% lived on social security benefits. A particularly interesting sidelight at Association is the indication that children who attend day care centers do so for reasons other than the fact that their mothers are employed. We have no way of knowing how widespread a phenomenon this is, but it would seem that the prevailing stereotyped notion that day care centers accommodate only the children of working mothers may be inconsistent with the reality and should be open to further scrutiny and study.

The only similarity among all three full day programs is the fact that those mothers who have ever worked seemed to have been employed in white collar occupations in significantly greater proportions than the fathers. This may not be an uncommon phenomenon among low-income families, whether white or Negro. Though there is no way of knowing if the same people are involved, it is interesting that exactly the same proportion of fathers at Association attended college as are employed in white collar jobs.

Table XVII shows the reasons given by respondents, (Proprietary is not included as was pointed out earlier) for sending their children to school. It may have limited usefulness, since respondents were asked to list all the reasons that applied and were not asked to list them in any order preference, but it is interesting nonetheless to compare the responses given and to see which ones seem to cut across socio-economic lines and which ones seem to be the result of socio-economic factors. Regardless of socio-economic status, two of the most frequently mentioned reasons for sending a child to nursery school or day care center are: 1.) the fact that the child has no one to play with, and 2.) a desire to prepare him for public school.

The fact that of those who responded, day care parents were interested to the same extent as nursery school parents in the early education of their children has significance not only for the kinds of programs to be planned by day care centers, but in reinforcing the need for the same kinds of high educational standards in both day care centers and nursery schools. Working mothers with limited income are properly concerned about the care of their children during the time that they are at work, but their concern is not only for the physical care and safety of the child. They seem to express the hope or expectation that this time be also used for constructive purposes.

Day care respondents to a greater extent than the nursery school respondents mentioned as reasons for sending their child to school those that might be termed mother-oriented: mother ill, mother not in the home, mother needs a rest, or mother works. It is particularly

TABLE XVII

REASONS GIVEN BY RESPONDENTS FOR SENDING CHILD TO SCHOOL

	FULL DAY PROGRAM		HALF DAY PROGRAMS			HALF DAY PROGRAM	FULL DAY PROGRAM	ALL PROGRAMS
	Mill Town	Association	University	Community Center	Country			
	(N=32)	(N=59)	(N=36)	(N=89)	(N=239)	(N=364)	(N=91)	(N=455)
	%	%	%	%	%	%	%	%
No one to Play With	31.3	32.2	41.7	55.1	34.7	40.4	31.9	38.7
No Place to Play	3.1	33.9	5.6	7.9	3.3	4.7	23.1	8.4
Need Help with Problem	12.5	13.6	5.6	2.2	6.3	5.2	13.2	6.8
Prepare for Public School	43.8	67.8	52.8	64.0	71.5	67.9	59.3	66.2
Mother Works	59.4	20.3	8.3	2.2	5.4	4.9	34.1	10.8
Mother at School	6.3	6.8	2.8	3.4	1.3	1.9	6.6	2.9
Mother Needs Rest	9.4	13.6	2.8	9.0	7.9	7.7	12.1	8.6
Mother Ill	3.1	6.8	0	1.1	0	.3	5.5	1.3
Mother Not in Home	3.1	1.7	0	0	.8	.5	2.2	.9
Older Child Attended	9.4	18.6	30.6	19.1	24.3	23.6	15.4	22.0
Other	12.5	10.2	41.7	36.0	32.2	34.1	11.0	29.5

interesting to compare these last percentages with the employment percentages reported for mothers in Table XVIII. At Mill Town, for example, almost 70% of the respondents reported that the mother worked either full or part-time and almost 60% listed this fact as a reason for sending their child to the day care center. At Association, 17% of the respondents reported a mother working and 20% listed this as a reason for sending their child to school-an indication, no doubt, of lack of accuracy, or lack of understanding of either or both questions. Among nursery respondents, the proportion of working mothers ranged from about 15% to 31%, while the proportion of those giving this as a reason for sending their child to school ranged from 2% to 8%. The higher income level among nursery school families, as well as the fact that most of the nursery school mothers who work do so on a part-time basis, clearly makes possible other alternatives for the care of the child while the mother is away.

One-third of the responding parents at Association listed as a reason for sending their child the fact that there was no place for the child to play, a significant commentary on their housing arrangements. This was a very minor reason at the other schools.

More than twice as many day care respondents as nursery school respondents listed as a reason for sending the child the fact that he needed help with a problem. When another question was asked about whether or not the child needed any special help at school, the proportion of "Yes" response was as follows:

Mill Town	21.9%
Association	33.9%
University	13.9%
Community Center	9.0%
Country	7.5%

As can be seen, at least twice as many parents checked the fact that their child actually needed help in school than listed this as a reason for sending him to school. This was true for every one of the schools, except for Country where there was a discrepancy of only about 1%.

SUMMARY

For the most part it is difficult to find connecting links between socio-economic status of clientele and cost of program. The one area which might have an impact on cost is the extent to which efforts are made to meet the needs of children with problems. Additional staff in the form of social worker, psychiatric consultant, learning specialists, etc. would increase the cost of salaries and therefore the total cost of the program. The two places, however, that do include a social worker on the staff do not have the highest cost per child hour--these two are Mill Town and Association.

More significant than any differences in the costs of full day programs as compared with half day programs are the differences in the kinds of families who make use of these services. Families who send their children to full day or day care programs are significantly different from families who send their children to half day or nursery schools. The extent and areas of differences have been the subject of this chapter.

In considering the kinds of families that have been studied, it was interesting to compare the costs to them for sending a child to school. Table XVIII compares these costs, not only among the several schools, but also with the cost to the schools themselves.

TABLE XVIII

COST PER CHILD DAY TO FAMILIES COMPARED WITH COST PER CHILD DAY TO SCHOOLS, BASED ON ENROLLMENT --

	FULL DAY PROGRAMS			HALF DAY PROGRAMS		
	Mill Town	Association	Proprietary	University	Community Center	Country
No. School Days	243	183	249	146	154	163
Cost Per Child Day to School, Based on Enrollment	$ 3.87	$ 4.85	$ 2.02	$ 4.70	$ 2.99	$ 2.61
Average Fees Paid by Family	5/Wk.	3.75/Wk.	12-14/Wk.	Affiliated: 175/Yr. Non-Affiliated 275/Yr.	235/Yr. Plus 130 For Transportation	Nursery: 324-432/Yr. Depending on Transportation Kindergarten: 360-468/Yr., Depending on Transportation
Average Cost Per Child Day to Family	1.00	.75	2.50	Affiliated 1.20 Non-Affiliated 1.89	1.51/ No Transportation 2.37/With Transportation	2.33/Nursery 2.52/Kindergarten

One of the interesting things to be seen here is the fact that Proprietary does indeed seem to make a profit. The limited services offered and the generally untrained staff hired help to keep costs at a very low level, making profit possible. The extent of subsidy given to the non-profit schools is also significant. Community funds, welfare funds, sponsoring agencies, and private fund-raising ventures are all sources of supplemental revenue.

The inequities that result from this kind of mass subsidy to relatively few programs are manifest. The largest number of facilities now available in the United States are proprietary, which means that they must function without such subsidy. If our findings are at all representative, such centers would be unable to afford many services that non-profit centers provide. Our findings suggest that those low-income families who are ineligible for subsidized programs, prefer not to become part of the welfare system, or are not aware of the alternatives available to them end up paying the most money for the least service.

From a social point of view, this has most important implications. Proprietary draws from a low socio-economic Negro community, but one which is relatively stable both in terms of family living and employment. Information on family income was not available, but it was known that both parents work and that the jobs held were in categories that are not usually well-paying. These were also families that were somehow able to pay between $12-$14 a week, on the average, for child care. Compared with the average weekly payments made by families using the other two full-day schools, this is not an inconsiderable sum. If there were indications that Proprietary was superior in any way to the other schools, it might be possible to explain the differences in fees in these terms, or to explain the parents'readiness to pay the high fee. In almost every comparison with the other schools, however, Proprietary, with the lowest cost per child day, was found to be the least adequate. It would be interesting to know what alternatives these families thought they had for the care of their children, and what reasons they had for selecting this particular school. No clues are provided by our data.

The picture portrayed by the families at Association, on the other hand, is one of dependency. Close to 90% of these families have annual incomes of less than $6,000, with about one-third living on AFDC payments, and few of the mothers working. Though the cost per child day is highest here among the full day programs, the fees paid by the families are the lowest. A more detailed study of Association and Proprietary families, had this been possible, might have shed light not only on the nature of the differences between them but on the factors that make for such differences.

CHAPTER VI - CONCLUSIONS AND RECOMMENDATIONS

POLICY ISSUES

It has been pointed out repeatedly in this report that cost analysis can provide a meaningful description of what the costs of a service are, but cannot, in itself, determine what the costs should be. The latter issue, which is the one of greatest concern to providers of day care service, rests on policy decisions which have to do not only with costs but with standards governing the types and quality of service to be provided.

Before proceeding to conclusions and recommendations concerning the cost analysis procedures themselves, we shall therefore review the implications of the study for these issues of policy.

A. Personnel Policies

1. Content of Day Care Services

There appears to be general agreement in the field that a proper day care program should include health, education, and welfare services. However, the precise manner of providing these services may be subject to a wide range of variation. Such variation was found among the six centers included in this study. All were licensed centers and therefore meeting at least minimum official requirements. All were making a claim to adequacy of service, including educational as well as child care components. Yet, if a qualitative evaluation were to be made there would undoubtedly be questions as to the relative adequacy of different centers and, in at least one case, as to whether minimum standards were being met at all.

The issue of qualitative standards can be approached through cost analysis only as some of the specific factors related to program content are specified quantitatively, in such matters as numbers and types of staff, their educational qualifications, and the salary levels required to obtain them. Each of these will be discussed in turn.

2. Types of Staff Positions

Most centers, whether their orientation is primarily welfare or educational, tend to have teachers in core staff positions. Equally universal is some provision for essential maintenance functions, which vary in accordance with the services provided and the size of the facility. One major variation within the group of centers included in the study was whether or not a social worker was part of the staff. Two of the centers had the part-time services of a social worker, the others did not. One center also provided part-time consultation services, including those of a nutritionist and psychiatrist. These professional services were not represented in the staffing, and therefore in the costs, of any of the other centers.

In calculating what the costs of a day care center should be, a standard would have to be established as to what range of professional services should be available, and in what quantity.

3. Use of Professionals and Non-Professionals

Closely related to specifying the availability of professional services is the complex question of how professional time should be used--i.e. which functions or activities require professional service directly, which can be done by non-professionals (perhaps under professional supervision), and whether only certain kinds of professionals can do certain tasks. Several of the study findings bear on these issues.

Looking first at the teaching function, which is the most universal, we find a variety of staffing patterns. One major variation is the extent to which student teachers are used. Another is the relative distribution of positions between teachers and assistant teachers. The costs in these particular centers do not necessarily correlate with such variations. For example, the center which uses the greatest number of student teachers has the highest costs, even though no cost was imputed for students' services in making the cost analysis. Total costs reflect many factors, particularly the salary levels. However, all other things being equal, the staffing pattern would have an impact on costs. Given the same number of teaching staff, a higher proportion of fully trained teachers would presumably be more costly than a larger ratio of less trained and therefore less expensive personnel. A standard is therefore required, specifying the desirable ratios of trained teachers to teaching assistants and/or student teachers.

In developing such a standard, it is pertinent to examine the implications of the time study. Although the results are far from definitive, it is clear from the material reported in Chapter IV that the teachers, and their assistants, in the two full time facilities that clearly conform with prevailing educational standards devote barely half their time to educational activities, as defined in this study. This is admittedly a debatable definition, since the activities designated in our analysis as child care or nutrition may be looked upon by others as an integral part of the educational function. The classification used in this study is designed to describe the different activities which take place in a day care service, without making a judgment as to their educational component or as to the personnel required to conduct them. This is fully described in the Time Analysis Manual.

Obviously, this is a complex problem. Each of the functional categories needs to be examined in terms of the specific activities it includes, and a determination made, on the basis of expert judgment, as to which of these activities is appropriately assigned to which category of employee. A further question is the extent to which certain activities are actually divisible: Thus, for example, whether it makes any sense, in relation to the nature of the work, for a teacher to cease her activities and turn responsibility over to someone else when there is no specifically educational activity taking place. Deployment of personnel would have a bearing on costs only if substantial blocks of activity could be assigned to less-trained and presumably lower-paid personnel. Whether and how this could be done, if at all, is a matter for experts in the program area. The issue is how teachers are best to spend their time.

Another area for standard setting is the specification of functions to be performed by other professionals. One specific issue is the function of a social worker, if that position is in fact represented. In one of the centers where a part-time social worker was employed, she reported spending a considerable portion of her time in working with parents to set fees, a function performed in other centers as part of the admissions process by directors. Similarly, parent counseling is undertaken by teaching personnel as well as by social workers. A standard is required to determine the criteria (e.g. size, character of clientele, etc.) by which specialized personnel become necessary to perform certain specified functions.

4. Teacher-Pupil Ratio

The ratio of teachers to pupils is an important element in costs, since teachers account for so large a proportion of the total personnel. The ratios in the centers studied ranged from 1 to 6 to 1 to 15 in full time facilities and from 1 to 7 to 1 to 10 in half-day centers. There was an almost perfect correlation between teacher-pupil ratio and costs in both groups (i.e. the higher the ratio, the higher the cost, calculated on a cost per child day basis). The one exception was Center School, whose costs were slightly higher than Country School, although it ha more children per teacher.

There is apparently a rough rule of thumb which can be used as a guide in regard to teacher-pupil ratio and a standard could probably be established on the basis of prevailing expert opinion.

5. Salary Levels

Salary levels, similarly, have a direct impact on costs. In the six centers studied, there was a consistent relationship in the rank ordering of costs and salary level, except for one instance, in which the cost per hour was out of the expected rank-order. In that instance, a higher salary level was more than compensated for by longer hours of work. (This was the University School whose costs were the highest in the group as was also its salary scale, but the hours of work included a period in the afternoon, which was not true of other half day centers.) As in many of the other factors that contribute to costs, salary level standards can probably be defined in relation to empirical studies of prevailing conditions.

We have outlined above a number of factors involving personnel standards which have a bearing on costs. Taken together, these are meant to make the point that every qualitative judgment on standards influences cost, and that no judgment relating to costs can therefore be made in the absence of a specification of standards. A vivid example of this relationship between standards and costs is provided in the case of the Proprietary Center, whose costs were substantially lower than the other centers, due to a combination of factors: absence of specialized staff, low teacher-pupil ratio, low salary level.

B. Unit Costs

We turn now to a number of other issues that bear on the question of how to determine costs of services and the basis for reimbursement. These are not matters of personnel policy, but involve differences among centers in the basic structure of their program.

There are two major variations which have a basic impact on unit costs: 1) whether the program is limited to the academic year or extends through the summer; and 2) whether the program is conducted for a full day or a half day. These variations are so important, that it seems inadvisable to try to develop a common basis for calculating costs for all programs together. Based on the findings in this study, it seems necessary to calculate costs separately for full day and half day centers, and also to develop separate costs for year-round centers as distinct from those functioning only through the academic year.

It would have been desirable to be able, at this point, to indicate with some precision the difference in costs that can be attributed to these variations in the working period. Such a calculation would involve determining which costs are fixed and which vary in relation to hours and days worked. We do know from our analysis that people who work longer hours receive a lower hourly wage, which means that there is a greater efficiency (or perhaps exploitation, depending upon one's point of view) in holding a staff to a longer work schedule. What such a comparison cannot clarify, however, is whether equivalent staff would be available to the center with the shorter schedule if the hours were to be increased. It is reasonable to expect that it would be somewhat harder to obtain personnel for a longer working day.

On the other hand, it does appear that there is a very significant margin of savings to a day care center -- when other factors are all relatively comparable-- in keeping its plant going for more days and/or more hours, thus giving a greater amount of service for (to put it in minimal terms) a less than proportionate increase in costs.

This finding may have some very real policy implications, for it suggests at least the possibility of furnishing incentives to day care centers to extend their services. In view of the serious shortage of services available in relation to need, this is an area of considerable potential significance.

Similar questions arise in regard to the degree of utilization of facilities. The material presented in Chapter III indicated how unit costs are affected by rates of attendance and absenteeism. This poses the issue of what standards to use for determining unit costs. The U.S. Children's Bureau directives suggest that enrollment figures be used to calculate costs rather than attendance figures. This seems to be a valid suggestion, since costs do not vary with daily attendance, and a center would be hampered in meeting its genuine costs if it lost income every time that a child could not attend. Fees are set at least on a weekly basis and sometimes on a yearly basis, in order to provide this protection to covering the fixed costs.

However, the question is not disposed of so easily, since the gap between enrollment and attendance represents a real loss of efficiency which therefore raises the unit cost, as our calculations have shown. Given the present situation of inadequate services and heavy demand, such a loss of efficiency cannot be treated complacently. A standard-setting and financing body will therefore need to concern itself with the way in which the problem of absenteeism is handled.

One common solution is deliberate over-enrollment, based on experience with average rates of absenteeism. In this case, enrollment figures could be used as a basis for calculating per-child cost, but the enrollment figure would exceed normal capacity. Unless measures can be taken to control the rate of absenteeism, this would seem to be the most feasible approach. It may involve reexamination of existing licensing standards governing the establishment of capacity figures of day care facilities to take account of actual utilization experience.

On the other hand, it is important to note that the use of enrollment figures as the basis for calculating the fee charged by a center or the reimbursement requested from a funding agency can operate to the disadvantage of a center, since it results in a smaller per capita cost than would be the case if actual attendance figures were used as a base. In an attempt to arrive at a fair basis for payment, account needs to be taken of the income structure of the center as well as of its costs. If income is stable, in the sense that all children who are enrolled are paid for whether they attend or not, then enrollment figures are a proper base. If, however, payment is erratic and dependent upon attendance, then the higher per capita cost based on actual attendance would be more appropriate.

C. Who Gets Day Care Service and at What Cost?

In Chapter V we presented some data on the characteristics of the clientele of the centers that were included in the study. This information was obtained with the idea that there might be some significant variations in cost that would prove to be related to the needs of different segments in the population. While the Socio-economic data did not contribute directly to the cost analysis itself, they point to some very significant issues of major policy for the field of day care service.

One of the most striking results of this study was the sharp contrast, in every area, between the Proprietary Center and the other five facilities, all of which were non-profit. The Proprietary Center had the lowest costs, but also the most minimal program, the least staffing, and the most marginal of services. Whether or not this center is typical of proprietary day care centers is not known to us. There is no reason to believe that it is notably below prevailing standards.

The very fact that its owner was interested in participating in the study whereas other proprietary owners who were approached did not respond points at least to community-mindedness in orientation of the service. Regardless, however, of how typical or atypical the facility is, it is important to note that the number of proprietary centers is very much larger than non-profit agencies, so that most people using these day care services are in fact dependent upon them.

A proprietary center, by definition, is one which is operated for profit, and therefore not subsidized from any community source. Although the financial information obtained from the proprietary center in our sample was faulty, it seems to indicate that the "profit" was small indeed, and that the center was just managing to make ends meet. Yet minimal though this operation is, and though its costs per child day are something less than half the costs of those centers with which it was compared, it is a costly service for the people using it.

The Proprietary Center, unlike any of the others, is completely dependent upon fees in order to keep in business.* This means that it must collect from its customers an average of $12 to $14 per week. This is a considerable sum for the people using it, who are working people on low incomes. Not only is this fee high in itself, but it is higher than the fees charged in any of the other centers.

The fee paid by working class people using the Proprietary Center is from 2 1/2 to four times as great as the fee obtained, on the average, from low income people using the other two full time centers, both of which are subsidized through United Fund sources.

While the non-profit full day facilities serve many families receiving public assistance, some of their users are employed and have incomes that are similar to those of the families using the Proprietary Center. However, they obtain for less cost much more adequate service than is obtained from the Proprietary Center at much greater cost.

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* See Table XVIII, p.121

The inequities are even more glaring when the comparison is made with the centers serving middle-class families. These are the three half day programs. None of them covers its costs from fees. Two are subsidized by their parent non-profit organizations (University and Community Center) and one covers the difference with fund-raising efforts. The fees range from $6 to $12 per week. In the case of the lower limit, which is the fee charged by the University for University-affiliated persons using the service (in effect, a type of fringe benefit), the cost to families is half that of the Proprietary Center which serves low-income families. Even at the upper limit, the average charge of $12 per week for half day at Country School compared with $14 per week for full day at the Proprietary Center indicates considerably greater financial pressure on the users of the Proprietary Center in relation to their means.

The social need reflected in a small way in this study seems clear and unmistakable. If families of low income who need day care services are to obtain services that meet the program and staff standards of responsible agencies in the field, this can come about only through substantial financial subsidy. If our data are any indication of the general situation, the bulk of the working class population that uses day care services at the present time are purchasing a service that they can ill afford and one which is grossly inadequate by the standards of both the social welfare and educational professions that claim jurisdiction in this field.

COST ANALYSIS RECOMMENDATIONS

In relation to the methodology of cost analysis itself, which was the central purpose of the project, the major question to be faced is whether cost analysis is a useful and feasible tool.

In a memorandum submitted to the project staff (see Appendix VII), Mr. W. Lynn Fluckiger of Peat, Marwick, Mitchell & Co.,consultant to the study, discusses the problems involved in trying to measure services performed by voluntary agencies. Expenditures of a business, he says, can be evaluated by the dollar return it produces. In voluntary agencies, however, expenditures are almost always made on the basis of individual or social need rather than on the basis of dollar amount, and the intensity of need is not subject to accurate objective measurement.

Any effort to apply a mathematical formula to the question of when social service should be rendered is handicapped because one side of the formula is not quantifiable.

Mr. Fluckiger goes on to say that efforts made by voluntary agencies to refine their accounting systems in order to develop comparable cost information on a functional basis so that an evaluation might be made of the efficiency with which public or private welfare monies are being spent, are subject to pitfalls not encountered by commercial enterprises.

One of the pitfalls is the development of great numbers of functional categories, in the belief that if functions are broken down into sufficiently small units they can then be compared between agencies. But as the functions or units into which costs are subdivided become smaller, the degree of inaccuracy becomes greater, until the resulting data are meaningless. Functions of voluntary agencies are by nature deeply interwoven with one another and it may be that only the very broad areas of program service, related perhaps to the agency organization structure, can be separately accounted for with sufficient accuracy to provide meaningful information. In regard to day care services, for example, one question would be whether the separation of child care activities (D) from education activities (G) is meaningful, whether the distinctions can be defined in a reliable and comparable way from agency to agency, and whether a standard can be developed as to what the distribution of staff time between these functions should be. If all of these criteria could be met, a functional breakdown of costs might then help to measure efficiency. These are all open questions at the present time.

The question of the feasibility of cost analysis also has another aspect, one that relates to the expense involved. The most costly part of a cost analysis, based on the experience of this study, is doing a time analysis. Housewives and students were hired to observe staff activities at each school for four-hour periods of time and to code these observations in certain designated ways. The direct cost of the time analysis was $1312.29. This included the cost of four housewives at a rate of $2.00 an hour who observed a total of 46 sessions, and nine students at a rate of $1.50 an hour (only four students were actually used)* who observed a total of 20 sessions, as well as the cost of their orientation and training, their travel time and mileage expenses, the time spent preparing for the observation period, and the post-observation review sessions.

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*The rest were on a standby basis, were trained, but did not have to be used.

The cost of observers actually used at each school was as follows:

School	No. Sessions	No. Observers Each Session	Cost
Full Day			
Mill Town	9	1	$211.24
Association	9	1	151.16
Proprietary	10	1	211.00
Half Day			
University	8	1	64.92
Community Center	11	1	206.90
Country	10	2	193.52
			$1038.74

Only the cost of those activities specifically related to the random days of observation are included in the above summary-preparation for the random days: observation on the random days, post observation sessions, and related transportation. It does not include the cost of training, site visits in preparation for the first day of observation, and other such expenses. Costs would also have been higher if an effort had been made to test coding reliability by placing more than one observer in a center at the same time, and comparing their independent coding of activities. The project staff believes that such reliability checking is necessary in any further testing of the time analysis procedures that were used.

These costs are also lower than they might otherwise be, because project staff served as observers at each of the centers where they had liaison responsibility at least once during the study period. The cost of project staff time in supervising observers, processing data cards, and fulfilling liasison duties was not included. Another additional expense that has to be considered is the use of machine equipment for processing the data. These factors of expense, combined with the burdens placed upon personnel of day care centers by the time study raise serious questions as to its feasibility, unless there are very important benefits to be gained.

Cost analysis, however, does not have to include such an elaborate time study. An alternative method employed in the course of this project was to develop a "typical day" profile based on the daily schedule found in each of the schools. The point of doing this was to see if data using a simplified scheme would be at all comparable to the data obtained from the random observers. Clearly, a scheme which takes account of seasonal variations as well as possible variations from day to day, and which provides for objective outside observers, ought to result in greater accuracy and more precise detail. It was felt, however, that there may be situations where such precision may not be necessary or cannot be financed. It was also felt that variations in activity may not be as widespread a phenomenon as had been thought.

The procedure used in estimating the typical day profile was to take the daily schedule as given, translate the listed activities into the functional categories devised for the study, measure the amount of time spent in each of the activity groupings, and then figure the percentage of time spent on each activity group in relation to the total amount of time the school was in session. All of this was completed before the time analysis results were made available.

For the nursery schools, which conducted programs lasting approximately three hours, 15 minute time intervals were used, each interval representing one block. For the full day programs, half-hour intervals constituted one block of time. The total number of blocks of time for each center was computed, then all the time spent during the day on each activity was added up and divided into the appropriate blocks of time, and then finally a percentage of time spent on each activity was computed based on the total number of blocks of time available for each center.

A weakness of using the daily schedule is that it represents a portrait painted by the school itself, and without some observation it would be difficult to tell how closely the schedule is followed in actual practice. On the basis of a limited amount of personal observation, however, it became clear that there is a pattern to daily activities in these schools and that though specific activities might vary from day to day, the variation was within a framework of general activity that tended to remain constant.

Another limitation, perhaps, is the fact that the typical day profile does not allow for individualization, in the sense that it is not possible to get a picture of how any one teacher spends her time; rather a composite picture is drawn, showing how teachers as a group spend their time. As it turned out, this limitation was true of the work sampling technique as well.

Still another limitation is the lack of official recognition given to time spent by employees on personal activities. Schedules seem to be made up from the point of view of what is happening to the child, and from this one infers what the teacher must therefore be doing. At Association School, for example, part of the teachers' regular daily schedule is an hour-long rest period during which time the aides supervise the children's naptime, yet this does not appear on the posted school schedule.

The gaps resulting from using only a daily schedule could be filled in through the use of other procedures like a diary or self-estimate of how time is spent, particularly by an administrator. One assumption that might be made is that, where a director does not teach, all her time is spent in administrative duties, and therefore all her time would be allocated to the administrative category. A case might also be made for putting a secretary's activities into the administrative category, since to a large extent her work follows closely the work done by the administrator. In addition, there are certain regularly scheduled activities (i.e., parent conferences, staff meetings, admissions interviews, writing of progress reports, etc.) that might be incorporated into the development of a yearly profile.

An analysis of the daily schedules showed that only three of the 13 activity categories listed for coding were included as part of the official schedule. These three activities, however, education (G), child care (D), and nutrition (E), accounted for over 70% of the time spent by all employees in each of the centers (with personal activity redistributed), according to the results of the time analysis.

Adjustments of the time analysis results were necessary in order to compare more accurately the results of the two procedures. The time analysis percentages for the categories G, D, and E were therefore recalculated so that together they also totalled 100%. Table XIX compares the results of the typical day using the daily schedule with the results of the time analysis using the work sampling method.

It can be seen from this Table that the results obtained by both methods are very similar, and at Mill Town and Country the percentage distributions are almost identical. The greatest discrepancy between the two methods exists at Proprietary, where no current schedule was available but where one was made up based on information obtained from staff.

It is particularly interesting to see at University how close the percentages are when the typical day is compared with the results of the morning random moment tabulations, instead of with the random day tabulations. University is the only center where it was possible to continue using the daily random moment procedure in addition to the ten random day observation periods. More than twice as many

TABLE XIX

COMPARISON OF RESULTS FROM TYPICAL DAY PROFILE AND TIME ANALYSIS, USING ONLY G,D, AND E ACTIVITIES

FULL DAY PROGRAMS

ACTIVITY	Mill Town		Association		Proprietary	
	Typical Day	Time Analysis	Typical Day	Time Analysis	Typical Day	Time Analysis
	% of Time	% of Time	% of Time	% of Time	% of Time	% of Time
G (Educ.)	59	56	58	48	25	20
D (Ch.Care)	31	30	31	32	57	43
E (Nutr.)	10	14	11	19	18	37
Total	100	100	100	100	100	100

HALF DAY PROGRAMS

ACTIVITY	University			Community Center		Country*	
	Typical Day	Time Analysis		Typical Day	Time Analysis	Typical Day	Time Analysis
		Random Moment A.M.	Random Day				
	% of Time	% of Time	% of Time	% of Time	% of Time	% of Time	% of Time
G (Educ.)	82	82	75	67	76	71	72
D (Ch Care)	9	11	16	25	14	19	19
E (Nutr.)	9	7	9	8	10	10	9
Total	100	100	100	100	100	100	100

*Typical Day Percentages represent the average between the mornings and afternoon sessions which were calculated separately. The Time Analyses were also recalculated to present a composite picture.

individual acts were recorded and coded during the daily random moments as compared with the random day observations for the morning school session (1395 acts compared with 569 acts), which may in part explain the difference. In both procedures (random moment and random day) the G, D, and E categories actually accounted for about 75% of the total time spent by all employees.

If a time analysis is indicated, a decision as to which method is to be used will in large measure be determined by the amount of detail wanted and the amount of money available. Certainly the advantages of using the daily schedule are obvious: it is a fast, easy, and above all, economical way of getting reasonably accurate information about the major activities engaged in by preschool staff.

Even with a simplified procedure, however, there is a continuing question as to how necessary or even useful it is to achieve a functional breakdown of costs, as against the usual manner of presenting costs in "object" terms--i.e. amounts for salaries, food, telephone service, maintenance, etc. The functional distribution is useful only in the sense that it provides a picture of the different components in the service being given, and the relative proportions of each. It has policy implications only to the extent that there is some need or desire to evaluate these program components and develop standards for them. For example, such data would be pertinent if an attempt were being made to establish a standard that "X" percent of the work of a facility should be devoted to "education" and another percent to "child care", or that not more than "X" percent should be spent on parent counseling. In the nature of the situation, given the ambiguity of definitions on all these program elements, it seems most unlikely that such standards will be attempted.

The heart of the cost issue in day care service is really not in the functional breakdown of the costs, but in the overall elements. The basic question has to do with the kind of day care services we want to see developed and are willing or able to support. The cost of the service will be determined in large measure by the answers to this question. To arrive at a basis for a unit cost, it is necessary to know what the actual costs are per child, or child day, or child hour, and to know the components of the cost, not in terms of functional breakdowns, but in terms of types and numbers of staff, staff-pupil ratios, salary standards, hours of operation, etc. It is also necessary to know what is being paid or should be paid for the use of facilities, whether owned or rented; and what central services are being provided by parent or host agencies, where that is a factor.

Such information, all of which can be obtained without either a time analysis or a functional breakdown of costs, should provide a funding agency with the data necessary to determine how various alternative funding policies would affect the centers in its jurisdiction. There are two general policy issues. One is the determination of the standards that a facility must meet in order to be eligible for financing, and this includes all of the program standards issues outlined at the beginning of this chapter. The other is what the basis for funding should be--whether it should involve a flexible rate of reimbursement, depending on an individual examination of the costs of each facility; or whether some uniform rate of payment should be made for units of care provided by a center, regardless of variations in their actual costs. Some of the issues involved in that determination were outlined in Chapter II.

While functional analysis of costs is not essential to these questions, it does have a potential contribution to make to the internal examination and evaluation of the content of the service being rendered. The realization of this potential requires further development of both quantitative and qualitative standards in the field of day care services. The Time Analysis Manual presented as Part II of this report reflects the work done in this project in developing a tool for future use in situations where functional analysis of the content of day care programs may be indicated.

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APPENDIX I

Procedures for Working Relationship between Research Center, Florence Heller Graduate School, Brandeis University and Centers or Schools Participating in Project R-122 on Cost Analysis in Day Care

A. Responsibilities of the Research Center.

1. In general, the Research Center will be responsible for conducting the Project according to established research standards and with minimal possible interference with the day care or school program.

2. All data provided by the participating nursery school or day care center will be considered confidential and are to be used for research purposes only. Data from a particular school or center will be published only in a manner which does not reveal the identity of that school or center.

3. The Research Center will be responsible for providing the various study instruments, such as an accounting classification, a system and procedure for analyzing time expended by various staff, schedules for interviewing parents, etc. Participants' advice will be sought on all these instruments and whenever feasible pre-tests will be arranged.

4. The Research Center will be responsible for providing various specialists: (i) an accountant to instruct on the use of the accounting classification to be used; (ii) research interviewers to interview parents; (iii) other specialists if needed.

5. Tabulation and analysis of data and preparation of the report are responsibilities of the Research Center.

6. Postage paid envelopes will be provided by the Research Center if data are frequently and regularly required to be mailed in.

7. A copy of the cost analysis procedure and manual, which are the items to be produced by the Project, will be provided to each participating nursery school or day care center. Also to be provided are tabulations on the costs of the participating centers or schools.

B. Responsibilities of the Participating Nursery School or Day Care Center.

1. In general, the participating school or day care center will be expected to provide all the following types of data as accurately and completely as necessary for the study.

(a) Information will be required on all expenditures during the study period of twelve months and on accounts outstanding on the first and last days of that period. Expenditures are to be classified into the account categories established by the project accountant for purposes of the study. (Participating schools or centers will be instructed on the account categories and on the appropriate procedures for classification of expenditures.) Whether reports on monthly expenditures will be required to be made monthly or quarterly will be determined by the project accountant.

(b) It will be necessary to arrange for or provide an assortment of miscellaneous data on a one-time basis. Examples include information on training and experience of staff, space measurements of the rooms and playground used, information on the families which is on file, and a list of the names and addresses of parents whose children are attending the center at the time. (The last item will serve as a means of locating the parents to be interviewed.)

(c) Information on time spent by certain staff in various activities will be sought. It is planned that time analyses will be needed for the director, teachers, and any other employee who spends considerable portions of his time in more than one type of activity. The means and procedures for the time analysis have not yet been decided upon and every effort will be made, in consultation with the participants, to minimize the inconvenience of collecting such data.

2. Participating schools or centers will be expected to keep project staff currently informed of any major changes in the operations or program (i.e., staff changes, significant increases or decreases in enrollment, etc.).

APPENDIX II

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PEAT, MARWICK, MITCHELL & CO.
CERTIFIED PUBLIC ACCOUNTANTS
SEVENTY PINE STREET
NEW YORK, NEW YORK 10005

February 9, 1966

Professor Arnold Gurin
Florence Heller Graduate School for
Advanced Studies in Social Welfare
Brandeis University
Waltham, Massachusetts

Dear Professor Gurin:

We have participated with members of your staff in the project of Cost Analysis in Day Care Centers for Children. The purpose of the project was to devise and test a method for analysing the costs of such day care programs on a comparable basis. Over the two years of the project we have assisted members of your staff in compiling data and organizing working papers, and in the general conduct of the study. The study included the compiling of information furnished by each of the six day care centers included in the study. Information furnished by the centers was in some cases not subject to audit. In other cases, records from which the data were taken were incomplete and, therefore, subject to some inaccuracy. However, inasmuch as the purpose of the project was not to verify the accuracy of information but rather to test methods of compiling and handling information, the inaccuracy did not affect the primary purpose of the project.

In our opinion the study was conducted in a careful and accurate manner, and adequate consideration was given to the questions of accounting theory and principles which were involved. As we indicated in our earlier conference, we concur in the conclusion of the report that the use of cost accounting techniques for subdividing cost functions to the degree attempted in this survey is of questionable value.

The use of broad functional accounting which might treat the entire program of a day care center as a single function, separating only administration and fund raising costs, would offer a much more realistic approach.

Yours truly,

PEAT, MARWICK, MITCHELL & CO.
/s/

APPENDIX III

The following were the general decisions agreed upon by project staff and accounting consultants in relation to the allocation of costs:

1. Items Pertaining to Staff:

    A. For staff performing only a single function (cook, driver, nurse) all expenses--salary, FICA and any relevant fringe benefits--would be allocated to the appropriate functional category.

    B. For multi-functional staff, all expenses would be allocated according to the time analysis distributions for all employees grouped together.

2. Cost of Personal Activities (R) would be redistributed over all other functional categories in order that the cost of non-productive activity be shared proportionately.

3. Donated Services, Facilities, or Supplies:

    A. Since student teachers did not represent a real cost, no cost would be imputed for them. Cost of supervising student teachers was compensated for by the services they rendered, and so this represents a washout item.

    B. No imputations were made of donated facilities since they too did not represent real costs.

    C. The value of surplus food was readily identifiable and was there-included as a cost.

4. Non-salary items insofar as possible would be allocated directly to the appropriate functional category. Exceptions:

    A. General or miscellaneous items, where feasible, would be analyzed in order to make proper allocations.

    B. Items pertaining to maintenance would be allocated on the basis of space utilization (total amount of space divided into the appropriate functional categories, depending upon the use to which it is put).

5. Wherever possible, administrative items would be allocated to appropriate functional categories. The administrative category (Q), therefore, would be a residual category for administrative items not otherwise allocable.

6. A distinction would be made between Costs of Operation and Costs of Facilities, with the latter costs not included as part of the cost analysis since they varied so much from school to school (cost of facilities: rent, depreciation, real estate taxes, etc.).

7. Where a school is part of an agency, institution, or federation, a portion of the expenses incurred by the central body is to be allocated to the school on the basis of a formula individually arrived at:

University:

a. Maintenance and grounds expenses allocated on basis of space utilization factor.

b. Other university services used by the school would be allocated on the basis of the ratio of school expenses to total university expenses for preceding fiscal year.

Community Center:

a. Allocation of salary of agency executive director made on basis of formula derived from time analysis results.

b. Allocation of other agency administrative expenses made on basis of ratio of space utilized by nursery school to total agency space.

Association:

a. Allocation of central office salaries made on basis of formula derived from time analysis results.

b. Allocation of other central office expenditures made on basis of the ratio of child days care provided by Association to the total child days care provided by all schools under the federated auspices.

Appendix IV

General Procedure Used for Selecting Random Half-Days - Revised

Step I. The year was divided into 3 seasons for this purpose. October and November were defined as Fall; December, January and February as Winter; March, April, May as Spring.

Step II. A list of Mondays from October 15, 1964 to May 15, 1965 and their corresponding dates was made. The same thing was done for each day of the week and for each Center. Legal holidays and vacations were eliminated from this list.

Step III. Numbers from 001-N were assigned to the Fall months; 100-N were assigned to the Winter; and 200-N were assigned to the Spring. The first number for each day of the week was selected from the Fall group (001-N, even or odd); the second number from the Winter group (101-N, alternating odd and even; i.e., if Fall was even, then Winter was odd, etc.); the third number was chosen from the Spring group (201-N); the fourth number was selected from the Fall group, etc., continuing to alternate between even and odd. Tippett's Tables were used for this selection. Pages and lines used were recorded. Even numbers signify mornings and odd numbers signify afternoons. This procedure was used at all centers although we made no distinction between odd and even numbers at Country, where we are using only afternoons, and at University where we are using only mornings. This method was used for each day of the week, ending with a total of 6 numbers (dates) for each day (Monday thru Friday). The 6 numbers so selected were paired into 3 groups: the first two dates, the middle two, and the last two. Each pair consisted of 1 A.M. and 1 P.M., and each of these occurred in a different season.

Step IV. Three pairs of dates were thus obtained for each week day (Mon., Tues., Wed., etc.). These 15 pairs of dates were then re-arranged into 3 lists of 10 dates each. The rearrangement was performed as follows: each of the three pairs for Monday (as described in Step III above) was recorded on a slip of paper and the three slips were then mixed and Pair I, Pair II, and Pair III selected at random.

After the lists for Monday were determined, the same procedure for Tuesday was followed. However, if the same seasonal pair was selected for Tuesday that had been selected for Monday, then this was rejected and another pair was drawn. Following this procedure, the lists for Wednesday, Thursday and Friday were drawn, being sure not to have the same seasonal pair follow twice in a row.

End Result: Three lists of Random Days (Half-Days) for each center, a total of 10 half-days on each list, two for each day of the week, with a fair distribution of seasons (3,3,4 in 4 centers; 2,4,4, in 1 center; i.e., 3 days in the Fall season, 3 days in the Winter season, 4 days in the Spring season, etc.).

10/8/64

Appendix V

SAMPLE PLAN CALCULATIONS

A. Random Moment Procedure

Sample size required to estimate any sample proportion with a sample error of .01 = 2,500

1. University School

(a) No. of [Random Moments / Observation Rounds] During Regular Work Hours

(i) 2,500 ÷ Number of work days x No. of staff = Number of observational rounds per work day.

(ii) 2,500 ÷ 180 x 4 (director-teacher, teacher, plus 2 student teachers) = 3+, rounded to 4 random moments during the school work day 8:30 a.m. - 3:00 p.m.

(b) Number of Random Moments During After Hours (3:01 - 10:00 p.m.)

2 - Selected on basis of feasibility

2. Association Central Office

(a) Number of Random Moments During Regular Work Hours

2,500 ÷ 200 work days x 5 Administrative Staff (Executive Director, Director of Education Program, Director of Social Service, Nutrition, Bookkeeper*) 2.5, rounded to 3 random moments during period 9:00 a.m. - 5:00 p.m.

*Information subsequent to calculation indicated this position involves only one function; this person was excluded from the work sampling procedure.

(b) Number of Random Moments During After Hours (5:01 - 10:00 p.m.)

1 - selected on basis of feasibility.

B. Random Day Procedure

1. University School

3 rounds/hour x 3.5 hours (8:30 - 12:00) x 4 staff (Director-teacher, teacher, 2 student teachers) x 10 random days = N = 420.

N = 420, for sample proportion = ≤0.5, sample error (σ) is approximately** .025.

** See Table C, p. 234, Heiland and Richardson Work Sampling.

B. Continued

2. Proprietary School

3 rounds/hour x 5.5 hours (7:00 a.m. - 12:30 p.m., 12:31 p.m. - 6:00 p.m.) x 2 staff (cook-driver-teacher, teacher) x 10 random days = N = 385

N = 385, for sample proportion = $\overset{<}{0}$.5, sample error (σ) is between .025 and .03

3. Country School

3 rounds/hour x 3 hours/day x 14 full-time equivalent staff (7 full-time teachers and assistant teachers + 15 part-time teachers, assistant teachers and student teachers) x 10 random days = N = 1,260

N = 1,260, for sample proportion = $\overset{<}{0}$.5, sample error is approx. .015

4. Community Center School

(a) Teaching staff (excluding director-teacher of nursery school and Executive Director of the Community Center)

3 rounds/hour x 3.75 hours (8:30 a.m. - 12:15 p.m.) x 8 staff (teachers and student teachers) x 12 days = N = 1,080

N = 1,080, for sample p = $\overset{<}{0}$.5, sample error is less than .02 and more than .015

(b) Administrative staff

(i) Regular hours

3 rounds x 3.75 hours x 2 staff x 12 days = 270

(ii) After hours

1 round/hour x 9 hours (1:00 p.m. - 10:00 p.m.) x 2 staff x 12 days = 216 = N
486

N = 486... sample error is less than .025 and more than .02

5. Mill Town School

3 rounds/hour x 4.5 hours/day $\left[(8\text{-}5) \div 2\right]$ x 7 full time equivalent staff (teachers, assistant teachers, and student teachers*) x 10 random days = N = 945

N = 945, ... sample error is between .015 and .02

---

*At time calculations were prepared (9/4/64) no. of student teachers (student nurses?) was not yet arranged with the "training" school; an alternative calculation was prepared allowing for 9 full-time equivalent staff: N = 1,215 ..σ is between .01 and .015

B. Continued

6. Association School

3 rounds/hr x 3.5 hours/day* (8:30 a.m. - 3:30 p.m. ÷ 2) x 6 staff (teachers and aides) x 10 random days = N = 630

N = 630, ...sample error is approximately .02

*Aides were reported to work a 7-hour day, teachers an 8.5 hour day; above calculation was intended to be conservative in light of uncertainty as to actual work schedule at time calculations were made (9/11/64)

NOTES: -

(1) During the sample planning, calculations were also made with 5 and 20 Random Days. These are not shown above.

(2) Calculations were made for some of the 6 places above for teachers only (excluding assistants, etc.); since sample error exceeded .025 (which would mean a 95% confidence range broader than I .05) these were "not accepted" by B.G.

(3) Various pertinent assumptions or pieces of information were not confirmed or were learned to be inaccurate subsequent to the calculations (and associated selection of random days and random moments); i.e., A2, B.5. Additional items of this sort have not been detailed above.

(4) Sample error (σ) is that for simple random sampling.

B.G. - 12/28/65.

Appendix VI

GUIDE TABLE OF SAMPLE ERRORS FOR SELECTED SAMPLE PROPORTIONS
Proportion of Observations Recorded* in a Given Activity Among Employee Groups at Participating Schools or Centers

Cell values are Sample Errors at 95% confidence limits - Cell values = 2σ, or more precisely, are approximations of 2σ as presented in Table C, p. 234 Heiland and Richardson, Work Sampling.

Exact values for 2σ may be calculated from the formula:

$$2\sigma = 2\sqrt{\frac{\text{Sample Proportion) (1-Sample Proportion)}}{\text{Sample Size}}} = 2\sqrt{\frac{(Ps)\ (Qs)}{N}}$$

N = Sample Size = Total Observations recorded* for the indicated Employee Group(s)

School/Center & Employee Group(s)	Selected Sample Proportion Ps=0.10	Ps=0.20	Ps=0.30	Ps=0.40	Ps=0.50
UNIVERSITY SCHOOL "Teaching Staff" - Dir.-Tchr., Tchr., Stud. Tchrs. N = 474	≲ .03	≲ .04	.04-.05	.04-.05	≲ .05
Dir-Tchr. + Tchr. N = 221	≳ .04	≳ .05	> .05	> .05	> .05
PROPRIETARY SCHOOL "Teaching Staff"- Tchr. (full-time), Tchr. (part-time) N = 166	≲ .05	> .05	> .05	> .05	> .05
COUNTRY SCHOOL "Teaching Staff" Head Tchrs, Asst. Tchrs, Stud.Tchrs, Substit. N = 1,864	.01-.02	≲ .02	≳ .02	.02-.03	.02-.03
COMM. CTR. SCHOOL Tchrs. & Stud. Tchrs. N = 1,065	≲ .02	.02-.03	≲ .03	.03	≳ .03
Dir's, Reg. & Non-reg. hours N = 505	≲ .03	≲ .04	≳ .04	.04-.05	.04-.05
MILL TOWN SCHOOL "Teaching Staff"- Tchrs., Assts. & Student Tchrs. N = 737	.02-.03	≲ .03	.03-.04	≲ .04	≲ .04
ASSOCIATION SCHOOL "Teaching Staff" Tchrs. & Aides N = 649	.02-.03	≳ .03	≲ .04	≲ .04	≲ .04

Table III continued

*N = Random Day Observations Recorded During Regular Hours unless otherwise noted.

Symbols:

∼ means Approximately

< Sample error is less than the figure following

> Sample error is more than the figure following

$\lesssim$ .02, S.E. is approximately, but less than .02

$\gtrsim$ .02, S.E. is approximately, but more than .02

B.G.
1/1/66

APPENDIX VII

Problems Encountered in Evaluating the Performance of Non-Profit Organizations on the Basis of Cost Factors

The entire field of voluntarism is currently facing a great upsurge of interest in more precise accounting for services rendered by voluntary agencies. This increased interest is a natural result of the great increase in dollars being spent by voluntary organizations for all kinds of social services. The lament is raised that agencies rendering these services, because of accounting limitations, have been unable to demonstrate whether their costs of service are reasonable. United funds, governing boards, national associations, accrediting bodies, and state regulatory agencies, as well as private donors, find themselves faced with an almost impossible task if they wish to determine with any precision which of the agencies they support, accredit or serve is operated efficiently.

As interest has expanded, important steps have been made to improve voluntary agency accounting. The "Uniform Standards of Accounting and Financial Reporting for Voluntary Organizations," recently developed under a major project by the National Health Council and the National Social Welfare Asembly is only one development toward better accounting in this field. The purpose of the "standards" was to establish a uniform basis for the preparation of financial reports in order to make them more understandable to the reader. It was intended that the maximum uniformity between organizations practical without undue accounting burden be sought in order that the captions on one statement might be reasonably compared to those on another.

This project promises great assistance to those faced with the dilemma of inadequate financial information about the operation of organizations in which they are interested.

The Problem of Measuring Values

There is one problem, however, in this important area of financial reporting for voluntary agencies, which has not been fully recognized particularly by some whose primary previous orientation has been in the business world. The voluntary agencies express this problem by a simple statement to the effect that "we cannot be run like a business."

The problem deals directly with the difficulty of measuring the services performed by voluntary agencies. In a business organization the primary purpose, always clearly recognized, is to develop a profit. The profit is easily measurable in dollars. Every operation, therefore, which can be shown to contribute to the profit can be evaluated by the extent of its contribution. In effect, every expenditure of a business can be evaluated by the dollar return it produces.

In voluntarism, expenditures are almost always made on the basis of individual or social need rather than on the basis of dollar amount. The intensity of the need varies widely, but it is not subject to accurate objective measurement. Thus, any effort at applying a mathematical formula to the question of when social service should be rendered is handicapped because one side of the formula is not subject to quantification.

Problem of Too Much Detail

Some rather extensive efforts have been made to refine the accounting systems of voluntary agencies in order to develop comparable cost information on a "functional"basis. The purpose of these commendable efforts is to provide a means for evaluating the efficiency with which public or private welfare monies are expended. The approach has in some cases been an effort to adapt to voluntary agencies the principles of accounting which have been developed for commercial enterprises. Thus, units of service are defined, overhead rates are computed, allocations are made, and the resulting theoretical data are intended to represent the cost of some specific unit of service performed by some specific agency.

One of the pitfalls of this approach lies in the great number of functional categories which have been developed. The philosophy has been that, if functions are broken down into sufficiently small units they can be compared between agencies. However, this very subdividing imposes a need for accounting allocations and arbitrariness which undermine the accuracy of the resulting data.

As the functions or units into which costs are subdivided become smaller, the degree of inaccuracy becomes greater until the resulting data are meaningless. This happens much earlier on the continuum in voluntary agencies than in business, because of the relatively greater difficulty of subdividing functions which by nature are deeply interwoven and have never been separated by sales unit. The question must be seriously considered as to whether any but broad functional areas of program service, perhaps related to the agency organization structure can be separately accounted for with sufficient accuracy to provide meaningful information.

When "program functions" represent large enough groups of activities, error and difficulty from accounting procedures are minimal but the resulting data represent groups of activities which are probably not comparable between agencies. Thus, the choice is between highly refined costs of rather limited specific functions which contain a large proportion of hidden "mechanical" errors, but give the impression of being precise and accurate, and on the other hand, costs of functionally related groups of activities which do not claim to be precisely accurate, but which are free from the hidden meachanical error of over refining accounting techniques.

The Accounting Workload

Any refinement in accounting is bound to cause some additional administrative problem to the agency. Voluntary agencies usually have at least some units which are small with unsophisticated or even volunteer bookkeepers. The burden of accounting for detail functional subdivisions can multiply the accounting workload substantially.

Certain accounting improvements will undoubtedly be necessary for some agencies. These can hardly be argued against ev en though additional cost is involved. However, the cost curve for agency accounting will move up rather sharply as required detail becomes finer. Since accuracy is decreasing as cost is increasing, movement up the scale should be made with care.

Summary

Undoubtedly some effort is necessary to unify and improve the accounting of voluntary agencies. The vast quantity of funds which are being expended for various social services deserve the attention of the contributing public and the government regulatory bodies. If agencies do not feel accountable they will undoubtedly be less careful in use of their monies than otherwise. However, efforts to compare the costs of units to services rendered by different voluntary agencies or to evaluate efficiencies of agencies on the basis of unit costs alone must be tempered with considerable caution and appreciation of an agency's unique approach to a problem. Otherwise, detail accounting procedures may burden agencies beyond the value of the information produced.

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IN
SOCIAL WELFARE

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COST ANALYSIS OF DAY CARE CENTERS FOR CHILDREN

PART II

TIME ANALYSIS MANUAL

MAY 1966

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PREFACE

GENERAL PURPOSE OF COST ANALYSIS PROJECT

The principal aim of the Cost Analysis Project has been to construct a method of cost analysis of pre-school programs (nursery schools and day care centers) and to conduct a trial of that method. The phrase "method of cost analysis" refers to procedures for calculating costs on a comparable basis; that is, the costs of one pre-school program could appropriately be compared to the costs of another.

In the course of the project, expenditure data on the participating programs have been obtained. It was hoped that the costs computed for the six programs in the study would be reliable and comparable, and that, after additional trials, the cost analysis method would permit standardized calculation of costs on a nationwide basis. It was also thought that the cost figures obtained for a specific pre-school program would be useful for management purposes within that program.

It was anticipated that such figures as cost per day, per child, etc. would vary greatly between various programs. Therefore, the attempt was to construct a method which would also provide clues about sources of variation in costs. This was the reason for using a "functional" accounting system. Cost was expressed not as "objects of expenditure" -- i.e., equipment, salaries, but in terms of the functions for which the equipment was used or which the staff performed -- i.e., educational services, parent counseling, etc. (In passing, mention should also be made of the greater meaningfulness to parents and laymen of costs expressed in functional terms; nor should it be overlooked that functional accounting information has important utility for purposes of internal management of a program.)

As in other service programs, salaries make up a large part of the cost of a pre-school program. Therefore, as part of the Cost Analysis Project, a means was developed for recording and analyzing time spent by staff. This part of the project is called time analysis and the methods used were Random Moment and Random Day sampling. This approach, which provides sampling estimates of staff time applicable to groups of employees, is described in this Time Analysis Manual.

In preparing this manual we have leaned heavily upon the work of John G. Hill, Ralph Ormsby, and William B. McCurdy, published in Time Analysis Manual (N.Y.: Family Service Association of America, 1962). Our indebtedness to that work, on which some parts of the following are modeled and other parts cited at length, is gratefully acknowledged. Material is cited by permission of Family Service Association of America.

INTRODUCTION*

In general, clerical as well as professional staff must participate in the time study in order to obtain a complete picture of staff activities. However, it is not necessary to include those staff whose work involves only one or two activities (as classified in this manual) such as a full-time cook or an employee who is paid only to drive the school bus and do maintenance work. The time spent by staff performing single or dual functions will be estimated by other, more simple means than random moment sampling. A list of staff whose time expenditures are to be estimated by random moment sampling and those to be estimated by other means must be agreed upon well before the time study begins.

The time analysis method is described in detail in the materials that follow. An activity classification provides the structure within which meaningful time data can be assembled. Identified in the classification are the end-products which constitute the services an agency offers the community and its clientele. (Examples are Admission Process, Transportation, Parent Counseling, Educational Service, etc.) Also identified are the enabling, or administrative activities necessary to produce services but which are not services of themselves. (These include staff development, public relations, fiscal operations, personnel administration, etc.) To round out the picture of time utilization, activities not directly related to agency work (such as vacation, special leave, rest periods, sick leave and the like) are also indicated. Within broad categories data are accumulated, where relevant, on processing activities (such as recording, consultation and the like).

The time analysis method makes use of a sampling technique generally known as work sampling. While this manual does not describe the cost analysis method, it is designed to provide time data in the form useful for cost analysis. The time data to be obtained may also be valuable for purposes of internal management. Since most nursery schools and day care centers spend a considerable portion of their total financial expenditures for staff salaries, a thorough study of the use of staff time becomes the major part of an agency's cost analysis.

The essential procedure which must be followed by each staff member participating in the time analysis is to classify an activity according to the purpose of the activity. For example, a teacher may talk with a mother about her child's adjustment to the program; the staff time so spent should be classified in the appropriate category - for example, Parent Counseling. The director of the school or center may speak with that same mother about a meeting for parents of enrolled children; her time should be categorized as Parent Group Activities. It would not be very enlightening to classify such time expenditure under a general heading as "talk with parent". The purpose of the conversation determines the classification.

Most staff members, whether professional or clerical, are involved in a variety of activities. For example, a teacher, director, or social worker interviews applicants (Admission Process), describes and explains the program to community groups (Public Information) and attends professional conferences (Staff Development). A secretary may type letters, case records, notices or minutes pertaining to a variety of specific activities, or collect fees, and so on. Time so spent should be properly classified.

By following the procedures described, the school or center will provide time data in a form that will permit comparison with other schools or centers undertaking a similar time analysis.

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*This section is adapted from the Introduction to the FSAA TIME ANALYSIS MANUAL

CHAPTER I

GENERAL FEATURES AND OUTLINE OF THE CLASSIFICATION SCHEME

In a time analysis study the way activities are classified is of basic importance. The classification scheme presented in Chapter II was devised to provide data useful for analysis of staff time and for cost analysis. The structure of the classification plan used here was modeled on that developed previously by the Family Service Association of America.

Any classification of activities carried on in nursery schools and day care centers is bound to be somewhat arbitrary. In great part this is due to the many ways in which the various goals of such programs overlap: a snack or lunch provides nourishment, thereby contributing to the child's physical development; eating with his age group also contributes to the personality and social development of the child; but every activity or event that involves a child is broadly educational, so we must recognize a contribution to his acquisition of knowledge and skills.

Other kinds of overlap also occur, such as a staff meeting at which are discussed the progress of individual children, evaluation of a project, and planning for the week ahead, etc. It is necessary to select a primary purpose from among such multi-purpose activities. The exercise of reasonable judgment will settle most problems of making selections. While acknowledging the overlap of various aspects of programs and activities, it is hoped the following criteria, definitions and the classification itself are minimally arbitrary and will be useful for the purpose at hand, cost analysis.

One of the criteria used to categorize activities is the kind of specialist to whom most people would turn if advice were sought. So, for example, physicians are generally accepted as the knowledgeable experts on medical matters, nutritionists on food and diet, teachers on early childhood education, etc. Saying this, however, does not imply that such specialists need necessarily be staff members. Nor does inclusion in the classification of one or another service or activity mean the Cost Analysis project recommends such work be done. Inclusion in the list merely means some nursery schools and day care centers perform such work, that where it is done it is considered an important part of the program, and that calculation of the cost is necessary for purposes of cost analysis.

Another guide is intended to ease the difficulty of selecting one activity from a complex network in which overlapping, interwoven action sequences may be simultaneously present in each situation. For example, at one and the same time a teacher may be mixing paints for an art project later that day, talking to a student-teacher about preparation of paint in general, and keeping a watchful eye on the children at play. The general rule for selecting and classifying one activity in such a situation is to determine which activity is the most necessary or is the least dispensable at that time and place. The activity which is deemed most essential at that particular time is to be coded for the time analysis. This rule of relative indispensability is intended to acknowledge that two staff persons may differ on what is judged to be least dispensable, but that general agreement is likely in many situations, and that even for the same person different emphases may be placed on situations which are only formally similar. For example, a teacher is supervising children on a project while also giving pointers to a student-teacher, and circumstances arise -- such as two children squabbling noisily -- which permit or require a choice between the two activities; G-07 --see Education-- would be the appropriate code if the student training was discontinued and the supervision of the children was continued; or, if it was decided to permit the children to settle their quarrel by themselves and continue the student training discussion, then a different code -- see I, Student Training -- would be more appropriate.

A general feature of the classification scheme presented here is that the term "activity" is used in a special sense. Unless provision in the classification is otherwise made, specific activities should be understood as also applying to tasks done directly, or immediately in preparation for, or as follow-up to performing the described or defined action. For example, one specific category deals with supervision of children on a field trip; that specific category is also to be applied to other phases of the whole sequence of action, occurring over some period of time, involved in a field trip such as making arrangements with a museum, preparing for transportation of the children, etc., etc. In other words, save for a few explicit exceptions, the specific activities are so worded as to select, like a photographic snapshot, one moment or phase from the moving stream of acts starting with "preparation" and ending with "follow up."

Related to the foregoing is the problem raised by an activity which simultaneously follows up a past action and also prepare for a future act. For example, a teacher is sweeping up, after a paper-cutting project and prior to setting up cots for the childrens' nap. The general rule for these situations is to code the activity which completes the action sequence begun earlier (in our example, clean up after the paper-cutting--educational--project).

Another feature of the classification scheme should be made explicit. The scheme was devised for conducting a time analysis as part of a cost analysis method. The costs which are considered relevant are the financial costs incurred by or chargeable to the school or center. All other financial costs such as those experienced by parents or employees, and all social, psychological, etc. costs are construed as outside the scope of cost analysis. Therefore, classifying activities by purpose served, the point of view taken was that of the school or center as an on-going system. This is not to deny that the same activities may serve other purposes--those useful or meaningful to parents, the parents' employers, the school or center staff, or even to the community at large. But for cost analysis of nursery school or day care programs, the focus chosen for classifying activities was that of the functions "officially" performed by the school or center.

Outline of the Classification Scheme

All activities in which staff invest their time are first grouped according to the purpose of each activity in relation to the work of the school or center. The major categories are called Activity Groups. One class of such groups, which cover activities directly related to the end products of the school or center, is called Program Activity Groups; examples are the Educational Service, Health Service, and Transportation. Managerial activities, which are not performed as program end products in and of themselves, are included in the Administrative Activity Group. Finally, "company time" spent by staff on their own behalf as employed persons is classified in the Personal Activity Group. A letter designation (A, B, C, etc.) is given to each Activity Group.

Each activity is further classified within an Activity Group to describe the type of activity, such as talk with parents or consultation on a specific child. A numerical code is used to designate the specific type of activity.

Finally, in some schools or centers, a special code may be appended to further classify an activity in order to provide information on some special phase of a program.

A brief sketch of the basic components of the activity classification plan follows. A more elaborate discussion of the components is to be found in Chapter II

ACTIVITY GROUPS

All activities of staff members on which time data are to be collected are first grouped according to the purpose of each activity in rendering the school or center's programs. These major purposes are designated by code letters as shown below. Program Activity Groups (A - K) are distinguished from the Administrative Activity Group (Q) and from the Personal Activity Group (R).

A--Admission Process

B--Transportation

C--Parent Counseling

D--Child Care Service

E--Nutritional Service

F--Health Service

G--Educational Service

H--Parent Group Activities

I--Student Training

J--Study Activities

K--Community Activities

Q--Administrative Activity Center

R--Personal Activities Center

SPECIFIC ACTIVITIES

Within each Activity Group, an activity is further classified by a numerical code describing the specific type of activity.

Standard code numbers are used for specific activities. For example, a talk with a parent during a scheduled conference at the school or center is coded A-20 if admission of the child is the subject discussed, C-20 for Parent Counseling purposes, etc. The code number 30 is used to designate staff discussions or conferences on a specific child or family; A-30 is the appropriate code for this activity when it is primarily concerned with the Admission Process, E-30 when it is primarily a-about the specific child's nutritional requirements, etc.

For ease of recording, code numbers for work in the Program Activity Groups (A - K) are divided into five broad groupings and one miscellaneous item. Program activities numbered 01-13 pertain to direct work with children. Those numbered in the 20's (codes 20-28) refer to activities with parents. Codes numbered in the 30's refer to staff discussions.

Codes for activities with students or researchers are numbered in the 40's and community activities are coded in the 50's. Time spent in writing or dictating records, reports and correspondence, in typing these materials, and in other secretarial and clerical work is coded in the 60's.

Where no code provided appears appropriate, a miscellaneous code for program activities, number 99, is available. When this code is used, however, it is to be accompanied by a description of the activity.

Codes for work classified in the Administrative Activity Group (Q) are numbered in the 70's. Code numbers in the 80's apply to activities classified in the Personal Activity Group (R).

The use of the standard code numbers makes it possible to analyze time spent on a given type of activity that takes place in several Program Activity Groups. It is very important to study carefully how each specific activity code is used in each Activity Group. For example, C-31 refers to communication with consultants or personnel of other organizations in preparation for the counseling of parents; H-31, however, refers to staff communication with consultants or personnel of other organizations in preparation for a parent group activity. Taking another illustration, code A-60 covers dictating or writing reports or records on a specific child or family involved in application for admission, whereas F-60 is the appropriate code for dictation or writing of reports dealing primarily with the health of a specific child or family.

Each Activity Group involves only certain specific activity codes. Code G-03, for example, would be incorrect since supervising or helping children in washing up or toileting are excluded from Educational Service as defined in this manual. A useful guide for determining quickly with specific activity codes are appropriate for the various Activity Groups is found in Appendix A, A Summary of Staff Codes. The section of Chapter II entitled "Some Examples of Activity Classification" may also prove helpful.

SPECIAL CODES

These codes are used to help segregate the time spent on nursery school or day care programs from time devoted to other programs conducted by multi-purpose organizations, such as community centers. Special codes are also the means for isolating the costs of a specific nursery school or day care center which is part of a federated association of such schools or centers.

The scope of interest in this manual is specific nursery school or day care programs. The special codes are categories for activities entirely or partially within that scope and for those entirely outside that scope.

CHAPTER II

CLASSIFICATION OF ACTIVITIES AT NURSERY SCHOOLS AND DAY CARE CENTERS:

Definitions of and Codes for Activity Groups and Associated Specific Activities

PROGRAM ACTIVITY GROUPS (Codes A through K)

A--Admission Process

This category includes all activities directly associated with the possible enrollment of an individual child. It includes activities on inquiries and applications regarding specific children. This category includes interviews with applicants at the school or center or at their homes, talks with children, etc. prior to the admission of the child to the regular, daily program.

A-13 Observe, talk with a child whose admission is being considered. This code is to be used for observing or talking with the child only if such activities are specially arranged for (i.e., while another staff member is interviewing the parent, or during a period set aside for this purpose).

A-20 Talk with parent during scheduled conference at school or center. This activity code includes all interviews with applicants and inquiring parents which were arranged in advance. A discussion with an inquirer who just "walks in" is not to be included here, but is to be coded in A-21 (see below). A telephone conversation on admission of a specific child is covered by code A-24, below.

A-21 Talk with parent informally at school or center. Included in this activity code are all face-to-face discussions with applicants or inquirers (about admission of a specific child) which were not scheduled in advance. Telephone conversations with such individuals are to be coded A-24.

A-22 Talk with parents at their home.

A-23 Travel to and from home of parents for the purpose of screening applicants.

A-24 Talk with parents via telephone.

A-25 Refer applicant to other nursery school or day care center. Referral means providing applicant with name(s), addresses, etc. of other centers or schools. Generally, but not always, a referral is made in the belief the applicant could or should apply at the place referred to. (Communication about referrals with the personnel of the other school or center is to be coded under A-31.)

A-26	Refer parent to source of help for themselves or child on medical, dental, financial, social, emotional, etc. matters. Referral means providing names, addresses, and other information on specific sources of help. This code is to be used when the referral involves a parent applying or inquiring about admission of the child to the school or center. (Communication with the specialist referred to is to be coded in A-31.)
A-30	Discuss, confer with staff regarding specific child or family. This activity code covers time spent by staff members discussing the specific application, admission decision, etc.
A-31	Communicate with consultants and personnel of other organizations regarding a specific child or family. This code is for activity in relation to an intake decision, to making referrals for the applicant, etc.. Writing, telephoning, and talking face-to-face are forms of communication to be included here.
A-32	Staff discussion or planning of the admission process in general.
A-60	Write or dictate reports, records on a specific child or family involved in the application for admission.
A-61	Write, dictate general report on admissions activities.
A-62	Write or dictate letters, inter-office or agency memos regarding an application. (Use A-31, however, for letters to personnel of other organizations or consultants regarding a specific application.)
A-63	Clerical and secretarial work, including typing, associated with the Admission process.
A-99	Miscellaneous staff work related to the admission process not elsewhere classifiable (specify).

B--Transportation

This category includes all staff activities directly associated with transporting children to and from the nursery school or day care center and the child's residence. It excludes transportation activities specifically connected with aspects of other programs such as educational field trips or visits to health clinics. Discussions with parents mainly in regard to fees for transportation are to be coded B-99, and specified.

B-01	Drive, supervise children in transit to or from the school or center and the child's residence. This activity code also included the supervision and assistance of children embarking and disembarking from transportation vehicles.

B-30 Discuss, confer with staff regarding a specific child or family. Time spent by staff members discussing a specific enrolled child or the family in regard to transportation, schedules, arrangements, etc..

B-32 Staff discussions or planning mainly about transportation.

B-61 Write, dic tate general report on transportation activities.

B-62 Write or dictate letters ragarding transportation activities.

B-63 Clerical and secretarial work, including typing, associated with transportation activities.

B-99 Miscellaneous staff work related to the transportation of children not elsewhere classifiable (specify).

C--Parent Counseling

Included in this category are all activities directly associated with the provision of information, advice, or counsel to the individual parent (s) of enrolled children (after the admission process) or casual conversation with parents during working hours. Staff are involved in these activities when engaged with the parent(s) as a particular individual or couple, not as members or representatives of a parents' group.

Although the information or advice given may centrally and directly concern the child--his health, diet, development, etc., the staff-parent discussion may also concern the enrolled child only in an indirect way, may concern a non-enrolled sibling, or may concern the parents centrally and directly. Aside from such subjects as child behavior and development, parent counseling may deal with a whole range of family matters--finances, relationships between parents, parent-child relationships, and with aspects of the program as related specifically to a particular child or his parent (s) and with making the parent feel part of his child's care in school. A number of experts are generally considered to have specialized knowledge on different aspects of the above subjects -- child development specialists, early childhood educators, pediatricians, psychiatrists, psychologists, and social workers.

A clear illustration of activity in this category is a discussion for the purpose of informing the parent(s) on the child's development -- areas in which he has progressed and those in which further growth is believed desirable.

C-20 Talk with parent during scheduled conference at the school or center. This code is appropriate for time spent in conferences arranged in advance, in which the staff primarily provide information, counsel, or guidance on any of the subjects mentioned above.

C-21 Talk with parents informally at the school or center. This code includes discussions not planned in advance, in which information, advice, or guidance is offered by the staff member.

C-22 Talk with parents at their home for the purpose of parent counseling.

C-23 Travel to home of parents for a parent counseling session.

C-24 Talk with parent via telephone for the purpose of offering information, advice, or arranging an appointment for a parent counseling session.

C-26 Refer parents to source of help for themselves or their child on medical, dental, financial, social, emotional, etc. matters. Included here is time spent in providing names, addresses, and other information on specific individuals or agencies from whose help it is believed the parents and/or child could benefit. (Communication with the person or agency referred to is to be coded in C-31.)

C-30 Discuss, confer with staff on a specific child or family. Included here is time spent by staff members in a discussion to prepare for parent counseling with a specific family or to give a follow-up report on counseling a specific parent. Staff discussion of the Parent Counseling program in general is to be coded C-32.

C-31 Communicate with consultants and personnel of other organizations regarding a specific child or family in preparation for parent counseling. Writing, telephoning, or talking face-to-face are forms of communication to be included here.

C-32 General staff discussion or planning of parent counseling as a program.

C-60 Write or dictate reports and records directly related to parent counseling of a specific family. Included here is time spent on records and reports of staff discussions, of counseling sessions with a parent, etc..

C-61 Write, dictate general report on parent counseling.

C-62 Write or dictate letters, inter-office or agency memos regarding parent counseling of a specific family. (Use C-31 for letters to personnel of other organizations or to a consultant regarding parent counseling of a specific family.)

C-63 Clerical and secretarial work, including typing, associated with parent counseling activity.

C-99 Miscellaneous staff work related to parent counseling not elsewhere classifiable (specify). Included here would be "casual conversation" with the parent of an enrolled child, as the conversation is beneficial to both parent and staff.

D--Child Care Service

This category includes most activities directly associated with the routines of physical care normally provided or arranged for pre-school children.

Although the purpose of care activities is to safeguard the child as a physical organism, specialized knowledge is not usually considered necessary for acceptable performance. Specialized knowledge is generally deemed necessary, however, for nutritional activities (listed in E), health activities (listed in F) and educational activities (listed in G). Accordingly, these activities are excluded from the child care category and are treated separately.

D-02 Supervise or help children dress and undress.

D-03 Supervise or help children in washing up and toileting.

D-04 Supervise children during rest or nap period. If the staff person is also engaged in a second activity while supervising children during a rest period, the activity which is considered most indispensable at that time and place is to be coded. For example, let us say the second activity is reading professional literature; if circumstances required the staff person to choose between the two activities, presumably in that situation supervision of the children would be deemed most essential.

D-14 Making preparations for rest or nap period.

D-15 Daily cleanup, put away supplies, materials, or equipment in completion of a child care task. If the activity mainly involves supervising the children in cleaning up, then the activity is broadly considered as educational and is to be coded G-08.

D-30 Discuss, confer with staff regarding child care matters pertaining to a specific child. Included here is time spent by staff members to prepare for future activity or report on past work with a specific child in regard to care activities. (Excluded is staff discussion and preparation for parent counseling in regard to care. This is to be coded C-30.)

D-32 General staff discussion or planning of child care as a program.

D-60 Write or dictate reports, records on a specific child or family regarding care activities.

D-61 Write, dictate general report on child care.

D-63 Clerical and secretarial work, including typing.

D-99 Miscellaneous staff work related to the child care service not elsewhere classifiable (specify).

E--Nutritional Service

This category includes time spent on work directly associated with the physical nourishment of children attending a school or center. It includes activities directly connected with planning, preparing and serving food -- meals or snacks. It also includes time spent in supervising children while they eat.

Dietitians and nutritionists are generally accepted as the experts possessing specialized knowledge about nutrition. These specialists focus on the dietary aspects, the medical specialists on the physiological aspects of nourishment.

E-12 Supervise eating; help serve and feed children.

E-14 Arranging supplies, materials, equipment in preparation for meals or snacks.

E-15 Daily cleanup, put away supplies, materials or equipment used in preparing and serving meals or snacks. If the activity mainly involves supervising the children in such cleanup, then the activity is broadly considered as educational and is to be coded G-08.

E-30 Discuss, confer with staff regarding nutritional matters pertaining to a specific child. Included here is time spent by staff members to prepare for future activity or to report on past activity in connection with a specific child's nutrition (excluding discussions primarily on parent counseling, C-30.) An illustration of such activity is planning of substitute meals for an allergic child (with emphasis on the diet rather than on the allergic condition).

E-31 Communicate with consultants and personnel of other organizations regarding nutritional matters pertaining to a specific child. Included is staff time spent with nutritionists and dietitians discussing the special diet needs of a specific child. (Time with such specialists in planning the overall nutritional program for the school or center is to be coded under E-32, staff discussion and planning. Writing, telephoning, talking face-to-face are forms of communication to be included here.

E-32 Staff discussion or planning of the Nutrition Service in general.

E-60 Write or dictate reports or records on nutritional matters pertaining to a specific child.

E-61 Write or dictate other nutrition reports and records (excluding those on a specific child or family).

E-62 Write or dictate letters, inter-office or agency memos regarding nutritional matters. (Use code E-31 for letters to consultants or personnel of other organizations regarding a specific child or family.)

E-63 Clerical and secretarial work, including typing of reports, records and letters, in connection with the Nutritional Service.

E-99 Miscellaneous staff work related to the Nutritional Service not elsewhere classifiable (specify).

F--Health Service

Included in this category are all activities (excluding those attributed to child care and nutrition) directly connected with safeguarding and caring for the physical health of children at a school or center. These activities concern matters about which specialists such as physicians, nurses and dentists are generally accepted as the experts from whom to seek assistance and advice when needed.

F-10 Examine children for signs of illness, infection, etc., or supervise children who are being examined.

F-11 Comfort, treat, help an injured or ill child.

F-30 Discuss, confer with staff regarding the health of a specific child. Included here is time spent by staff members to report on past Health Service activity or in preparation for future Health Service activity pertaining to a specific child. (Excluded is staff meeting time spent mainly in connection with or preparation for Parent Counseling, C-30).

F-31 Communicate with a consultant and personnel of other organizations regarding the health of a specific child. Included is time spent with doctors, nurses, dentists, personnel at hospitals, clinics, health units, etc. discussing the health needs of a specific child. (Excluded is such time spent primarily for Parent Counseling purposes, C-31).

F-32 Staff discussions or planning of health program in general.

F-60 Write or dictate a report or record on the health of a specific child.

F-61 Write or dictate other health reports or records, excluding those on a specific child.

F-62 Write or dictate letters (Use F-31 for letters to consultants or personnel of other organizations regarding the health of a specific child.)

F-63 Clerical and secretarial work, including typing, in connection with the Health Service.

F-99 Miscellaneous staff work related to health services not elsewhere classifiable (specify).

G--Educational Service

This category includes activities primarily concerned with the growth and development of young children, with socialization to the peer group and with the acquisition of knowledge and skills. They are activities in which persons with specialized knowledge in early childhoodhood education or child development are generally accepted as experts. Excluded from this code are those activities more appropriately coded as D, Child Care; E, Nutrition; and F, Health.

G-07[*] Instruct, supervise, or observe educational and play activities, including field trips, involving an entire class, groups smaller than a class, or individual children. To be included in this category is time and effort expended by staff in transportation to, and return from, the site of a field trip. (If the staff is engaged in a second activity while instructing/supervising/observing play and educational activities, the one activity which is most essential--can be least dispensed with--in that situation is to be coded.)

G-08 Supervise or help child pick up, put away toys and materials.

G-09 Talk with, arrange activity for, supervise a child whose behavior indicates a need for special attention. (To be excluded from this category is special attention paid in connection with an injury or acute illness, for which code F-11 is more appropriate.) "Special Attention" should not be confused with the attention paid to individual children in the normal course of educational activities for pre-school children. The latter activity would be coded G-07.

G-14 Arrange, prepare supplies, materials and equipment for some part of or the entire day's program. The arrangement and preparation may be made before, at the start of, or during the day on which the program activity takes place. This activity is differentiated by its specificity and daily quality from the more general administrative planning and evaluation of the educational program (G-32).

G-15 Daily cleanup, put away supplies, materials, equipment used in connection with an educational or play program or project. If the activity mainly involves supervising the children in such cleanup, then G-08 is the appropriate code.

G-30 Discuss, confer with staff regarding educational and developmental matters pertaining to a specific child. Included here is time spent by staff members discussing past or future educational activity with a specific child (excluding preparation primarily for Parent Counseling, C-30).

G-31 Communicate with consultants and personnel of other organizations regarding a specific child. Included is time spent with early childhood educators or personnel from other organizations with interest and knowledge about the educational needs of the specific child or family. Writing, phoning, talking face-to-face are forms of communication to be included here. (Time spent with specialists in connection with Parent Counseling, C-31 is to be excluded here).

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[*] Originally, it had been hoped that it might be possible to distinguish activities involving an entire class of children from individual "free play" activities because of the importance attached to a balance of these activities by early childhood educators. The codes actually used by observers did try to separate these two kinds of activities, but experience showed that it was often very difficult to distinguish between them. Because of the coding difficulties and the failure of the original codes to capture the desired information, it is recommended that all play and educational activities be grouped together.

G-32 Staff discussion or planning of the Educational Service in general.

G-60 Write or dictate reports or records on educational or developmental matters pertaining to a specific child.

G-61 Write or dictate other educational reports or records (excluding those on a specific child or family).

G-62 Write or dictate letters. (Use G-31 for letters to consultants and personnel of other organizations).

G-63 Clerical and secretarial work, including typing of reports, records and letters, in connection with the Educational Service.

G-99 Miscellaneous staff work related to the Educational Service not elsewhere classifiable (specify). Although this should not be over-used, if an activity can be clearly distinguished from the Administrative Group but can not readily be assigned to a specific activity group, it can be coded G-99. That is, this is to be used as a "catch-all" category.

H--Parent Group Activities

This category includes all activities primarily concerned with providing parents of enrolled children, as a group, with instruction on early childhood education, nutrition, etc., or arranging for social and informal educational activities. Examples of staff activities included here are the efforts made to secure an outside lecturer or the time spent at parent teas and coffee hours held for social purposes.

Activities with a parent group primarily related to the management of the school or center are to be coded according to the instructions under Q, Administrative Activity Group (e.g., recruiting parent-volunteers and scheduling their work).

H-20 Talk with parent during scheduled conference at the school or center regarding Parent Group Activities.

H-21 Talk with parent informally at the school or center or at a time not specifically set aside for a conference, regarding Parent Group Activities.

H-22 Talk with parents at their home regarding Parent Group Activities.

H-23 Travel to and from home of parents for purposes of these group activities.

H-24 Talk with parent via telephone for purposes of these group activities.

H-27* Attend or speak at a social or educational meeting for parents of enrolled children. This code includes those meetings of a purely social nature as well as those designed solely for the formal instruction of parents on day care, child growth and development, etc.

H-32 Staff discussion or planning of parent group meetings.

H-61 Write or dictate reports or records regarding Parent Group Activities.

H-62 Write or dictate letters regarding Parent Group Activities.

H-63 Clerical and secretarial work, including typing of reports, records and letters, in connection with Parent Group Activities.

H-99 Miscellaneous staff work related to Parent Group Activities not elsewhere classifiable (specify).

I--Student Training

This category pertains to work directly related to the training, supervision and evaluation of students placed for field work by a university, college, training school or hospital. It refers to work associated only with students who participate in the program by performing such tasks as assisting teachers, supervising or teaching children, or providing casework services, etc. Not included in this category is supervision of regular staff members and volunteers. This work would be coded Q-74 (Personnel Administration and Supervision). Also not included is work with observers who are present in the school for research purposes. Work with these individuals should be coded under J-Study Activities.

I-40 Time spent by a student teacher and by a paid staff member discussing the student's work at the school or center is included in this category. Also to be categorized here are discussions on other matters--child development, social work principles, or even practical know-how--if these are directly related to the student's work or training. Time spent by staff in observing the student's performance is also appropriate to this category. If student teachers are included in the time analysis, then their observation of the school's activities for learning purposes would be included in this category.

I-41 Talk with the university or college supervisor, advisor of student teachers or student caseworkers, about the student's work. The conversation may be face-to-face or by phone.

I-61 Write or dictate reports, records related to student training.

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*The original codes used by observers tried to distinguish between formal and informal parent education. This was difficult to do, as it turned out, without asking many questions of staff. In order to simplify coding procedures and minimize staff annoyance, it is suggested that the two be grouped into one category.

I-62 Write or dictate letters, memos, etc. on matters related to specific students or relations with the training universities or colleges.

I-63 Clerical and secretarial work, including typing of reports, records and letters, in connection with Student Training Activities.

I-99 Miscellaneous staff work related to the training of students not elsewhere classifiable (specify).

J--Study Activities

Included in this category is staff time spent with interested persons who phone or visit to gain knowledge about the children or the program for academic or research purposes. Generally such persons are students -- of various disciplines -- who are learning by observing, by working on term papers, etc., and members of formal research projects. Staff activity includes preparing materials, talking with, instructing and advising such persons. To be excluded from this category is work with students who participate in the program by supervising, teaching children, etc. (See I, Student Training.)

J-42 Talk with persons who are interested in the program of research or educational purposes.

J-61 Write or dictate reports or records on Study Activities.

J-62 Write or dictate letters, memos, etc. regarding Study Activities.

J-63 Clerical and secretarial work related to Study Activities, including typing of reports, records and letters. For example, tabulating and recording data for research purposes are activities included here.

J-99 Miscellaneous staff work related to Study Activities not elsewhere classified (specify).

K--Community Activities

This category includes time spent by staff on behalf of -- as a representative of -- the school or center in consultation, social planning, coordination, or social action. Such activities generally have a wider scope than the internal interests of a single center or school. Numerous agencies or a variety of organizations or community wide issues may be implicated.

Examples include participation on a committee drafting proposed day care standards, time spent providing consultation to another school or center or in discussion with an inter-agency case conference group.

This category is differentiated by its purpose from activities performed mainly for public information, which should be included in Q, Administration.

K-50 Participate in Community Activities primarily concerning nursery school and day care.

K-51 Participate in Community Activities primarily concerning other programs and needs.

K-61 Write or dictate reports, records for Community Activities.

K-62 Write or dictate letters, memos, etc. regarding Community Activities.

K-63 Clerical and secretarial work, including typing of reports, records and letters, regarding Community Activities.

K-99 Miscellaneous staff work related to Community Activities not elsewhere classifiable (specify).

Q--ADMINISTRATIVE ACTIVITY GROUP

Administrative activities are defined as those which facilitate achievement of the end-product programs, which involve giving long-range consideration to the over-all program -- as well as to each of its segments looked at separately, and which often require dealing with persons outside the school or center.

This definition reflects the three aspects in which the concept of administration is viewed here. First, administrative activities are considered as means to achieving the program ends which the school or center aims to accomplish; as such, they are believed necessary to achieving the desired goals, but are not sought as program end-products in and of themselves. Preparing the budget and supervising staff are examples of this facet. Second, administration has to do not only with day-to-day operations but also with long-term considerations, not only with one or another of the program parts, but also with the program in its entirety. Consistent with this second aspect are the emphases in administration on coordination, evaluation and planning. A third component consists of dealings with other persons in the geographic, professional or organizational "communities" important from the standpoint of the internal interests of a single school or center. ("Community Activities" are distinct from these in generally having a wider scope. See p. 20) This third component is in accord with the traditional classification of certain activities as administrative, such as those connected with obtaining resources (i.e., raising funds, recruiting staff) or with interpreting the program of the school or center to various groups in the community (i.e., public information).

In this view administration is distinguished from the Program Activity Centers. If an administrative activity relates to a specific program activity, then it should be coded as a program activity. If the administrative activity significantly involves more than one activity group or concerns the overall agency program, then the administrative code Q is appropriate.

Administrative activities as defined above may be performed by others besides executive or administrative personnel.

Q-70 Fiscal Activities

Includes all time spent by staff on financial matters (excluding activities classified as "fund raising", Q-71 below). Fiscal activities include time spent on finance, investment and budget committees of the board; preparation of the budget and its presentation to the United Fund or other formal fund raising organizations; bookkeeping activities; audit; fee collection routines; signing checks; receiving, disbursing and accounting for school or center funds; keeping financial records, etc.

Q-71 Fund Raising

Includes time spent by staff in planning, developing, supervising and carrying out activities primarily and specifically aimed at gaining resources or support for the center or school. The support sought may be "in kind", such as equipment, materials, or volunteer time, or it may be monetary. Examples of such activities include meetings with parent groups having a financial aim, fun fairs, dinner parties or lunches with potential contributors, etc. (Excluded from this category are efforts to obtain support from formal fund raising organizations such as the United Fund - see Q-70). Also included is activity with the board and its committee in connection with obtaining monetary or other resources.

Q-72 Public Information

This category includes staff time spent in describing, explaining, or interpreting the program and operation of the school or center for the purpose of providing general information. As used here, this category includes activities undertaken to generally publicize the existence of a school or center, to acquaint various publics with details about the program, or to help create and maintain a favorable public image. Public Information activity with the board or a committee is appropriately coded here. Information media or processes include telephone discussions, press stories, other written materials, special functions such as annual meetings, speeches, radio and television appearances.

To be excluded from this category is information provided as part of a fund raising effort (see Q-71) or information given in connection with an inquiry or application on behalf of a specific child (A). Also to be distinguished from this category are activities more properly classified under Community Activities (Group K).

Q-73 Program Planning and Evaluation

Includes all staff activities directly related to planning, developing and evaluating part or all of school or center programs. This category includes time spent with consultants, in staff meetings, with individual staff members, at the library, etc., for the purpose of reviewing, assessing or designing ways of implementing or changing the on-going program or parts thereof. A staff meeting taken up primarily with reviewing the past week's program, or with planning the next week's program would be included here.

To be excluded from this category, however, are activities in preparation for a particular project, such as mixing paints for a finger painting project that day or the next. Also excluded are staff meetings in which the focus is on a particular child or family, or on the planning or evaluation of a particular program.

Q-74 Personnel Administration and Supervision

Includes all staff activities related to personnel practices and procedures: time with the personnel committee of a board; salary scales; recruitment of staff and volunteer workers (including parents) and assignment of their tasks; evaluation of staff performance and administrative action based thereon, such as job assignment, promotion and discharge; time spent by staff and supervisors in supervisory conferences which have as their focus the general or overall performance of the staff person. Excluded from this category is time spent for and by student teachers. (See I-40 and I-41).

Q-75 Staff Development

This category is to include time spent by staff, on school or center ("company") time, in maintaining a professional library for the school or center, reading professional literature, attending staff meetings or seminars held primarily to increase skill and knowledge, attending relevant courses at local educational institutions, professional conferences and special institutes.

Q-76 Supplies, Repairs, Maintenance

This category includes staff time spent in: arranging for maintenance, repair, renovation, and remodelling of the school or center equipment and building;

work involved in planning for a new building and having one constructed; taking inventory and selecting, ordering, and in purchasing supplies and equipment; and in doing maintenance work which is performed intermittently, such as Spring housecleaning, cleanup of toys at the end of the nursery school year, cleaning and straightening out office desks and files, etc... The maintenance tasks to be coded here are those performed more infrequently than the daily sort of cleanup tasks which are to be coded in Specific Activity No. 15.

Q-77 Board Activities

This category includes any staff time associated with the school or center board of directors, trustees, advisory bodies and committees which is not specifically related to one of the following: Q-70 - Fiscal Activities; Q-71 - Fund Raising; Q-72- Public Information; and Q-74 - Personnel Administration and Supervision.

Q-78 General Administration

This category includes staff time on all administrative activities which do not appropriately fit categories Q-70 through Q-77. Examples of activities to be classified here are the processing of mail, the recording of daily attendance, and time spent in connection with regulatory or licensing requirements. (When using this miscellaneous administrative category, provide descriptive detail of the activity on the Standard Activity Card.)

R--PERSONAL ACTIVITY GROUP

This category refers to "company time" spent by staff on their own behalf as employed persons. The purpose served by these activities is to help maintain the individual as an efficient employee and as a human being according to current social practices, standards, or laws. To be included here are attending to personal affairs during working hours; the more formally recognized time taken for lunch, rest periods sick leave, vacation, etc.; and occasions at which staff are engaged in conversation not related to business ("casual conversation") with co-workers and vendors. In the latter instance, caution should be taken that the non-business aspect of the "casual conversation" is not emphasized if the conversation occurs when the staff members are chiefly involved in the supervision of a Program Activity. If the staff is chiefly supervising nap time, by applying the rule of relative indispensability the code would be D-04.

R-81 Lunch Time

This category includes staff time spent at lunch during a work day. Do not use this code, however, if school or center business was scheduled and conducted during the lunch period. A staff person who is responsible for supervising children at their lunch while having her lunch should be recorded in E-12 above.

R-82 Sick Leave

This category includes time a staff person is absent from work because of illness, visit to a doctor, dentist, etc..

R-83 Vacation

This code includes time a staff person is absent from work and is on paid vacation.

R-84 Special Leave

This category includes time granted to a staff member for leave with pay, for a specified period or schedule, to perform a service for another organization. For example, a staff member may be released by arrangement with the school or center to teach a course, lead a seminar, work on a survey,...etc.. Leave without pay should not be included in the time analysis.

R-85 All Other

Included in this code is staff time spent in "non-business" conversation, rest periods, visits to the rest room, coffee breaks, office parties during working hours, tardiness in arriving for work, leaving work early, and attending to personal affairs during working hours. Compensatory time off is not to be included in the time analysis.

SPECIAL CODES

Special codes are the means of dealing with time spent by staff in activities defined as either outside or only partially within the scope of a time (and cost) analysis. The scope of interest in this manual is the nursery school or day care program.

Multi-Purpose Organizations

A specific nursery school or day care center may be multi-purpose in that it may also conduct another program such as a summer day camp. Or the nursery school or day care program may be one of a number of programs conducted by an organization like a community center. If the operations and costs of the various types of programs conducted by the organization differ markedly, then in a cost study of one type of program (e.g., nursery school) it is necessary to exclude costs of the other types. A decision should be made during the early planning stage as to which programs are sufficiently similar in operations to warrant coverage in the same time analysis.

The special codes for multi-purpose organizations are as follows:

A. Entirely Within Scope - This category is used for those activities the entire costs of which are appropriately charged to the nursery school or day care program. That is, the activities relate specifically and entirely to purposes of that program. An illustration is the time spent by the executive of the multi-purpose organization in a conference with the director of the nursery school to discuss recruitment of teachers for the nursery school.

B. Partially Within Scope - This category includes those activities of which only part of the costs are appropriately charged to the nursery school or day care program. These activities concern all programs of the organization or concern the nursery school (or day care) program plus one or more of the other programs. This code is applicable to all "overhead" activities the cost of which must be partially allocated to the nursery school or day care program in order to calculate the costs of that program accurately and completely. The director of a multi-purpose organization (which includes a nursery school or day care program) may serve as an example; his participation in such activities as a board meeting considering the salary schedule for all staff in the organization is partially allocable as a cost to the nursery school or day care program.

C. Entirely Outside Scope - This code applies to those activities of which no part of the cost would be an appropriate charge to the nursery school or day care program. These activities relate specifically and entirely to programs other than nursery school or day care. An example is the time spent by the director in a conference on a Golden Age program operated by the multi-purpose organization. Activities to which this special code applies are not to be classified into Activity Group and Specific Activity.

Federated Organizations (Single Purpose)

A specific nursery school or day care center may be one operating part of a federation or association which has other branches operating nursery school or day care programs and a central or headquarters unit. The focus of this manual is on just one specific operating school or center, so it becomes necessary to exclude costs of all the other operating branches. Following are the special codes for a time analysis with such a focus. (A modification of the following special codes would be required for a time analysis of all branches of the federation.)

A. Entirely Within Scope - This category is used for those activities the entire costs of which are appropriately charged to the nursery school or day care branch designated for the time analysis. These activities relate specifically and entirely to that particular operating branch. An illustration is time spent by the head of the federation conferring with the director of the branch on problems concerning the physical plant occupied by that branch.

B. Partially Within Scope - This category includes those activities of which only part of the costs are appropriately charged to the nursery school or day care branch designated for the time analysis. These activities typically concern the entire federation of operating branches. This code is applicable to all "overhead" activities the cost of which must be partially allocated to the designated branch in order to calculate the costs of that specific operating program accurately and completely. An illustration of such an activity is the time spent by the nutrition consultant (employed in the headquarters office of the federation) in developing a schedule of lunch menus for use by all the operating branch programs.

C. Entirely Outside Scope - This code applies to those activities of which no part of the cost would be an appropriate charge to the nursery school or day care branch designated for the time analysis. These are activities which relate specifically and entirely to nursery school or day care programs conducted by branches other than the particular one selected for analysis. An illustration is time spent by a consultant on early childhood education (employed in the headquarters office of the federation) on an evaluation of the program conducted by a branch of the federation other than the one selected for the time analysis. Activities to which this special code applies are not to be classified into Activity Group and Specific Activity.

In summary, there are three special codes for multi-purpose or federated organizations:

A -- Activities Entirely Within Scope

B-- Activities Partially Within Scope

C-- Activities Entirely Outside Scope

SOME EXAMPLES OF ACTIVITY CLASSIFICATIONS

In this section a few specific examples of activity classifications are given. These examples, in conjunction with Appendix A, provide guidelines for coding activities into the classification scheme.

The general guiding principle in coding activities is to ask why the activity is being engaged in. Is it a program activity such as the educational service, child care, etc.? Or is it an enabling activity, hence an administrative activity? Answering the question correctly immediately determines the Program Activity Group designated by the letters A, B, C, etc., or the Administrative Activity Group designated by the letter Q. Once this is decided, reference to the activity group in this chapter will help in deciding the precise activity code number to use. Thus, in all coding the purpose of the activity is the major deciding factor.

Occasionally, the prime purpose of an activity will not be immediately clear as it may have more than one major purpose. For example, a teacher-director may supervise a group of children at their nap while also completing the application form for license renewal. Or a teacher may talk informally with a parent while supervising the play of children.

The rule for selecting the primary activity in this type of situation is to determine which activity is the most necessary or is the least dispensable at that time and place. The activity which is deemed the most essential at that time is to be coded for the time analysis. (E.g., was the application for the license due the next day? Was the teacher the only adult available for supervising the napping children? The answers to these questions will affect the judgment as to what is least dispensable in those situations.)

Staff Activity Classifications

1. A teacher supervising one group of children in her class playing with blocks, another group modelling clay, and another child off in the doll corner. G-07
2. A teacher inspecting children for signs of infection. F-10
3. The director talking with a parent who arrived early to pick up her child about the child's progress and problems at the school or center. C-21
4. A staff meeting in which the educational program for the next week is planned. G-32
5. Discussion of a specific family counseling case at a staff meeting. C-30
6. A general supervisory conference involving the director and a teacher. Q-74
7. A teacher mixing paints and preparing materials for the next day's session. G-14
8. A teacher writing a report on a child's growth and development which deals with numerous aspects of the child--health, nutrition, education and child care. G-60

9. A teacher writing a report on the health of a specific child. F-60

10. A staff member writing a report on the Health Service of the school or center for public information purposes. F-61

11. A teacher having a scheduled talk with a parent (at the school or center) about the child's food habits. C-20

12. Typing a record about a parent group meeting. H-63

13. Doing clerical work for a research project -- filling in forms, etc.. J-63

14. A staff member taking a course on school or center time for professional development. Q-75

15. The director talking with a visiting researcher. J-42

16. The director of a federation discussing the over-all budget of the school or center under study with the board of the federation. Q-70-A

17. The director of a community center in which there is a nursery school program talking with the social worker about the community center teenage program. Since the activity is identified as entirely outside the scope of the nursery program, it is coded C, and no further breakdown of activity is required. --C

18. A staff member and a parent are engaged in "casual conversation" while the parent is picking up her child at the end of the day. C-99

19. Two teachers engaged in "casual conversation" while supervising children's nap time. D-04

20. Two teachers engaged in "casual conversation" during coffee break. R-85

21. Directors attending dinner at the home of an enrolled child for seemingly social purposes. G-99

CHAPTER III

TIME ANALYSIS METHOD*

After the classification plan has been worked out and each agency activity can be properly classified and coded, the next major step in time analysis is to devise a method for collecting data on how staff spend their time. The purpose is to determine the proportion of time spent in each activity group, and on each specific act within the activity group. However, unless an agency is prepared to have the staff account for every working moment during the period of the study, some form of sampling is necessary.

It is in sampling that many, if not most, time studies in social agencies are poorly planned. As a consequence, it is often impossible to tell whether or not the results reasonably reflect the use of staff time. A glaring example of poor sampling in social agency time studies is the common practice of slicing two to four consecutive weeks out of a year, collecting time data for this period, and on the basis of this information inferring or implying how staff time is generally spent throughout the year. Agencies usually insist that this two-to-four-week sample period be "representative," by which is often meant not that they be representative but rather that they be so chosen as to show the agency at its busiest. It is apparent why such a procedure not only is illogical but also why it is invalid to draw inferences from such limited data for any period except the two-to-four-week block of time during which the data was collected.

CHARACTERISTICS OF A GOOD SAMPLE

A good sample is one that will, insofar as possible, reflect in miniature the universe being studied. It should show each activity, whether considered good or bad, in its proper proportion. The sample must be large enough to yield the detail needed for the purpose of the study without being larger than necessary. In addition, the sampling plan should be as easy as possible to administer; cumbersome procedures are not only time-consuming but also encourage error. Yet all is in vain unless the sample truly reflects the universe under study. Only then is it possible to draw generalizations about the universe from the data gathered.

In time studies, it is particularly important that the universe be clearly identified. Is the study to find out how the staff spend their time only during a particular month? If this is all that is needed, then the sample should be drawn from that month alone. (It should, however, be drawn from the entire month, not just from one period of a few consecutive days.) Likewise, if the study is to find out how the staff spend their time during the whole year, then the sample must be drawn from the whole year, not merely from one or two fragments of it.

The type of information needed in any study is, or should be, governed by the over-all purpose of the study. It is perfectly feasible and logical, for example, to make time studies for any span from a week to a year or more, so long as the information on the time covered by the study fulfills the purposes for which the whole inquiry is being undertaken. Thus, in designing a time study, the use to which the resulting information is to be put determines the universe, or time span, to be covered and this in turn affects the sampling method.

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* This section is adapted from FSAA TIME ANALYSIS MANUAL.

In time studies designed to provide data for cost analysis, the fiscal year or school year is the most appropriate time period. Agency financial planning, accounting for expenditures and service statistics are done on this basis, as are financial allocations by central financing bodies such as United Funds. Variations in agency caseloads and activities follow annual cycles. Analyzing costs on a year's basis, therefore, encompasses such common variations as differences in agency workload between winter and summer months, attendance at out-of-town conferences, the comings and goings of students, vacations, etc.. Since this manual is being written with cost analysis as one major objective, the method described will assume that a year is the time period under study.

Let us assume that an agency wishes to collect, on a sample basis, information from the staff on how they spend their time during the year. Let us assume too, that the final results must show the proportion of all staff time devoted during the year to educational service, nutritional service, student training and other agency functions, as well as the proportion spent on activities related to these functions, such as consulting, recording, and the like.

The method selected for this manual can best be described by an analogy. Imagine a dart board in which one-third of the area of the board is red and the remaining two-thirds white.

Imagine that the dart board is spun on its center while 100 darts are thrown at the board. It is reasonable to expect that about one-third of these 100 darts will land in the red area and about two-thirds in the white area. If the dart board were subdivided into a larger number of areas of different colors, it would be reasonable to expect that the number of darts hitting a particular area while the board was spinning would be the same proportion of all darts thrown as the proportion that area represents of the whole board. For instance, if 10 percent of the dart board is blue, about 10 percent of the darts landing on the board will fall on the blue area.

Imagine, now, that the dart board represents a teacher's day and that on this particular day the teacher spent two-thirds of his time on educational activities, and the remaining third on child care. If one were to select, at random, a hundred moments out of the day, and at each of these moments one were to find out what the teacher was doing, about two-thirds of the moments would show he was engaged on educational service and the remaining third would show him working on child care. Thus, by selecting random moments from a teacher's day and finding out what the teacher is doing at each of those moments, it is possible to arrive at very close approximations of how the teacher divided his time among his various duties. The errors occurring in these approximations would be "random sampling errors," common to all sampling, and the magnitude of these errors could be computed if the moments were chosen in a statistically random fashion.

Applying this concept to a time analysis of an entire agency for a year, the universe would be the total working time of all staff members and the sampling unit would be the moment. For the time analysis study, all that is required is the drawing of a sample of random moments from all working time of all staff members during the year, and finding out what workers are doing at each of those moments. If 25 percent of all those moments show the teachers to be engaged in child care, then about 25 percent of staff time during that year could safely be inferred to have been spent on child care. The same applies for all agency functions and activities related to these functions.

If all study procedures are followed carefully, the accuracy of the end results will depend upon the size of the sample. The more time cards accumulated over the study period, the more precise will be the estimates of how staff time is used. As sample size increases, however, so does cost -- fiscal and psychic -- so both accuracy and cost must be carefully weighed.

A sample plan has been prepared by research staff for each school or center participating in the Cost Analysis Project. Although the plan for each participating school or center has been individually tailored, there are several general features of note. Each plan designates which staff are to have time estimates based on the random moment procedure. (Other, simpler estimates have been prepared for staff who regularly perform only one or two major *types* of activity during the work day, such as a full-time cook.) A central element of the sampling plan is the number of random moments selected each day at which time the activities of the designated staff are to be recorded or coded. The number of random moments selected depends on the number of staff in the various occupational groups, the number of work days and on the level of sample error deemed acceptable. (For those interested in the project computations of sample size, the formula used was that for simple random sampling of proportions; $\underline{p}$ was estimated at 0.5 so as to produce the most conservative sample size necessary for sample proportions of any magnitude at the level of sample error generally chosen, 0.01 .) The number of random moments selected during the regular "school day," the number selected for a period after regular hours, and the staff to be covered during each block of time are also included in the plan.

One consequence of the general sampling procedure should be made perfectly clear. In basing the computation of the necessary number of random moments on a *group* of employees (e.g., teachers), the sample estimates of time to be obtained will be reliable *only* for the group of employees and *not* for an individual employee. In general, far larger sample sizes would be necessary to obtain reliable estimates of an individual employee's time expenditure.

CHAPTER IV

COLLECTING THE TIME ANALYSIS DATA

Two methods have been devised for collecting the time analysis data -- the random moment procedure and the random day procedure. These will be discussed in the following two sections. The third section (Detailed Instructions) will apply to both procedures, except where otherwise specified.

A. RANDOM MOMENT PROCEDURE

A brief description of the daily study routine is as follows: At randomly selected moments during each workday, the school clerk begins a round of contacts with staff members to record on a card form the code for the activity each person is engaged in when contacted. When a staff member is absent from the school for a period during the workday, she gets in touch with the school clerk as soon as she returns. If the school clerk finds that a random moment fell in the period worked, the staff member reports what her activity was at that moment.

Experience with other time analysis studies indicates the need to develop and try out several aspects of the procedure described very generally above. Although alternative variations on the procedural steps may be acceptable, some are technically more desirable than others. Generally, although not always, compromises are possible between technical demands and practical considerations. Reasonable negotiation on these matters between the school director and the outside researchers usually produces mutually acceptable solutions.

One requirement of the random moment method of time analysis dealt with in this manual is the appointment of a school clerk by the director of the school. She should be assigned the secretarial and editorial responsibilities of the time analysis -- knowing the work schedules of staff members whose time is to be recorded, contacting staff at the random moments, and recording the codes, editing and filing time cards and sending in completed materials to the research office. Another staff member should be sufficiently familiar with the procedures in the manual to take over in the event the school clerk is absent. Major responsibility, however, should be given to one person, to the school clerk.

The boundaries between the school clerk's responsibilities and those given to other staff must be clearly drawn for the various tasks involved in collecting the data. An important decision in this regard is how the codes for the activities being performed at the time of the random moment are to be determined. Ideally, in the interest of uniformity and reliability, all coding decisions should be made by one person--the school clerk--on the basis of her observations. Practical considerations aside from illness and vacation may, however, make this impossible. Rarely can the school clerk observe staff work performed outside the school building. Or the school clerk may not be adequately trained or experienced to make all coding decisions reliably. Various combinations of responsibilities for these tasks have been tested and found to meet appropriately the specific situations in different schools. In a number of places the school clerk observes the activities and codes those she feels certain about. Varying arrangements have been developed when the school clerk is not certain which code is correct. In one school the staff person was asked to describe the activity in her own language and the school clerk based the code on that description; in another school the staff person was asked to suggest the correct code for the activity not clearly classifiable by the school clerk. At other schools it may only be feasible to have each staff member code her own activity and report that code for recording by the school clerk. Although far from the ideal, the last-mentioned arrangement is acceptable if all staff involved make a diligent effort to code their activities accurately, reliably and completely.

To some extent the decision on how the coding decisions are to be made is related to the way in which the school clerk contacts the staff person at the random moments. Of the several procedures possible--walking around the building (and grounds), telephoning, or a combination of these--the one recommended is walking around. The school clerk who visits the various rooms and offices while making a round does not always have to bother the staff for self-descriptions; she also has the advantage of her own observation as an additional basis for determining the proper code.

In summary, the school clerk may be able to ascertain the appropriate code from observation alone or with varying degrees of participation by the staff person in determining the code. When the staff person suggests a code, the school clerk may be in a position to corroborate it; similarly, when the school clerk is uncertain as to the proper code, the other employee may be able to provide corroboration. If there is a difference of opinion on coding between the school clerk and the other staff person, joint consideration of the activity in detail--including its purpose--may suggest a resolution. If the difference in interpretation remains, a description of the activity and of the different viewpoints on it should be recorded on the card form.

Another procedural decision concerns the coding of work performed outside of the school building, either during the regularly scheduled workday or after regular hours. Inclusion of such work activities in the time analysis is important in order to complete the picture of how staff time is spent. One arrangement has the school clerk phone the staff person at the outside site and ask for the information pertinent to coding. More typical is an arrangement whereby the school clerk obtains the necessary information when the staff person returns to the school and then codes retroactively.

Regardless of the type of procedure adopted, the school clerk should be very familiar with the categories, codes and instructions in this manual. Each staff member should know, at the very least, what information is needed for coding. A staff person who is to decide upon the code for her own activity should also be well acquainted with the concepts, classification scheme, and coding system.

B. RANDOM DAY OBSERVATION

Experience with the random moment procedure has made it clear that this is a feasible procedure only if certain assumptions can be borne out by fact. Implicit in the use of the random moment method is the availability of a school clerk capable of managing the demands imposed by the research study as well as the ongoing responsibilities of her regular job. Another tacit assumption, equally critical for the efficient management of the research, is stability of employment, at least as far as the school clerk is concerned. If there is staff turnover which makes necessary the training of a new school clerk once the study is underway, there may be a problem about the reliability or consistency of the material coded during and after the period of training.

As an alternative to the random moment procedure, where that is not feasible for any reason, the use of random day observers is suggested. For purposes of this procedure, the school year is divided into at least three seasons--fall, winter, and spring--and observation periods randomly selected to provide equal representation of the seasons as well as of the days of the week. If a school operates throughout the year, then the summer season should also be included. For full-day programs provision should be made to observe both morning and afternoon sessions. During each of the observation periods, the activities of the school staff are noted and coded by the observer on the basis of instructions given as part of the training process. Observers can be recruited from a number of sources including students, housewives, retired persons. During the period of orientation some candidates may change their minds about their willingness to participate, and others may seem to training staff to be unable to meet the demands of the job. If observers do not live in the general neighborhood of the school or center, then availability of transportation may be a consideration.

1. General Responsibilities of the Random Day Observer

For each observation period a number of moments are randomly selected in order to provide the total sample size necessary for sample proportions at the level of sample error deemed acceptable. At each random moment the observer begins a round of observation of each staff member, and notes on the appropriate code card with as much descriptive detail as possible the particular activity the staff member is engaged in at the moment of observation. At the end of each round, the observer returns to home base to edit her cards and, where possible, to code the activities observed. Home base is the place set aside by the school where the observer can perform her clerical work before and after a round, and leave her supplies during a round.

As each random moment occurs, the observer makes her rounds by walking around the center to locate all the staff members. Wherever possible, coding will be done by direct observation of the activities being carried on. There are, however, several instances, when it is not possible for the observer to code by observation alone. Examples of these instances and the coding procedures to be used are the following:

If a staff member is absent from school during part of the school day and a random moment occurs during her absence, the observer should obtain the necessary coding information retroactively as soon as the staff member returns.

If the staff member does not return by the end of the day, a Supplementary Activity Card should be left at the school for her to complete by recording those school-related activities performed during her absence, and then any such cards should be returned to the research office for proper coding.

Another instance where the observer cannot code by direct observation occurs when she is not at the center for the full day. If the observer is not present when the school opens (for example, she arrives at 8:30 a.m. and the session

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begins at 8:00 a.m.) and a random moment occurs before the time of her arrival, she should obtain the necessary coding information retroactively from each staff person as soon as she does arrive. In the same way, if the observer leaves before the end of the school session, she should provide each staff member with a Supplementary Activity Card on which to record all work done until the end of the work day. These Supplementary Activity Cards should be returned by the school to the research office where project staff can then code the activities listed for any random moment occuring during that time interval.

There will be other occasions during the day when direct observation will not yield enough information for coding purposes and where it may be necessary to question staff members about their activities. This may be particularly true of administrative personel and secretaries who are involved in a lot of paper work, conferences, telephone calls, etc. In order, therefore, to ascertain precisely what these people are doing, questions may have to be asked. The activities of teachers, on the other hand, are more easily observed and can usually be coded without questioning. Exceptions to this are phone conversations, the writing of reports, conferences, etc.

Although it is expected that the observer may have to question staff members, it should be made very clear that such questioning should be kept to a minimum and done as unobtrusively as possible. If necessary, several questions may be held in abeyance until such time as the staff member is relatively free to talk. Interruptions of activity are to be avoided, and the feelings of staff members are to be respected. The need for good judgement in this delicate area cannot be stated too strongly. There are, in addition, certain kinds of activities which should never be interrupted by an observer: nap periods, telephone conversations, story-time, and one-to-one relationships--whether with a child, a student, a parent, another teacher, the director, or a consultant.

Near the end of each random observation period, the observer should provide Supplementary Activity Cards to any staff member who always or usually does school-related work after school hours so that any such work done that particular day can be recorded. The observer must make certain that staff members understand how to use these Supplementary Activity Cards (for a detailed explanation of the Supplementary Card, see p. 39).

The proper identification of staff members may pose a problem for outside observers if large numbers of people are to be covered. Each observer should visit her school prior to the first observation period and be introduced to all staff members; but this is no guarantee that she will be able to recognize everyone, especially if there are long time lapses between the random day periods. Since identification of staff is crucial for accurate coding, certain steps can be taken to minimize the problem: 1) the observer can write down brief descriptions of each staff member during the time of the initial visit; 2) the observer can arrive at the school early enough to reintroduce herself to staff members and to check any troublesome identifications.

2. Training of Observers

The major advantage in using an outside observer to code staff activities is that such a person does not have multiple responsibilities during the time of the observation period and can devote all her thought and energies to the task at hand. The disadvantage of unfamiliarity with the job setting and possibly even with employee functions can be overcome through careful training beforehand. Reliability of coding (the goal of training) can be achieved when the observer is knowledgeable not only about the details of the coding scheme, but about the individual job procedures as well.

The training of observers should include: a) study of the Time Analysis Manual; b) orientation meeting; c) site visit; d) random observation periods; and e) post-observation sessions with research staff.

Study of Manual - It is essential that the observer studies the manual and becomes familiar with all the detailed information contained therein. The aims of the research, the classification scheme, and the procedures to be followed should all be clearly understood. Several readings of the manual may be necessary. Once the observation periods have begun, the manual should be used as a referance if any question arises and should be carefully reviewed just prior to each random day.

Orientation Meeting - After the manual has been studied, a meeting of observers with someone from the research staff can help to clarify ambiguities, to answer questions raised in the course of reading, and to explain in greater detail the material covered in the manual. This meeting should also provide observers with an opportunity to do some coding of hypothetical situations, and to discuss the reasons for assigning the codes they decided upon.

Site Visit - Arrangements should be made for each observer to visit her school or center prior to the first observation period. The purpose of this visit is to acquaint the observer with the physical layout of the school, to meet and identify staff members, and to note any special characteristics of the school that should be considered in planning for a smooth operation during the observation periods. This is another opportunity for the liaison research person to give the observer practice in coding and to discuss with her errors or questions as they arise.

Random Day Observations - The procedure to be followed during the periods of observation has been discussed earlier. What should be added now is the advisability of noting down any problems encountered during the period of observation so that they may be discussed later with the research staff.

Post-Observation Session - As soon as possible after each random observation period the observer should plan to meet with his liaison research person. At this time all questions and problems can be aired by the observer, and the research staff member can review with her all Activity Cards in order to check the codes where given, code from descriptive material when the observer was not able to code, and edit where necessary. The importance of adequate descriptive detail must be stressed again, because otherwise it becomes impossible to check the accuracy of the observer's coding.

C. DETAILED INSTRUCTIONS APPLICABLE TO BOTH PROCEDURES

In an attempt to minimize the number of forms for recording information on staff activity a single Activity Card was devised to serve two purposes. One side is called the Standard Activity Card (see top half of Appendix B--form number CAP-11-A); the other is called the Supplementary Activity Card (see bottom half of Appendix B--form number CAP--11-B).

STANDARD ACTIVITY CARD

This card is used to record the code for the activity at the random moment. As such, it is the principal form in the collection of data. The following information is to be recorded on each card (see Appendix B):

Employee Group (Box 1). I Administrator, including director-teachers, other administrative personel; II Teacher, excluding director-teachers; III Student teacher, including assistant teachers; IV Social Worker, including social work students in field placement at the school or center; V Clerical; VI Other: nurse, nutritionist employed as such (not as teacher or teacher's helper).

Activity Group (Box 2). The letter designation for the program, administrative or personal activity group is entered.

Specific Activity (Box 3). The numerical code describing the specific activity is to be entered; e.g., 01, 21, 30, etc.. If one of the miscellaneous codes is used (A-99, B-99, Q-78, etc.), a description of the activity must also be recorded in the space provided on the card.

Special Code (Box 4). A-Activity Entirely Within Scope of the Time Analysis: When this code is used, standard code entries must also be entered in the boxes for Employee Group, Activity Group and Specific Activity. B-Activity Partially Within Scope of the Time Analysis: When this code is used, the rule which applies to Special Code A is applicable here. Standard code entries must be included in the boxes for Employee Group, Activity Group and Specific Activity. C-Activity Outside Scope of the Time Analysis: When this code is used, a code entry must also be made in the box for Employee Group. However, for Special Code C only, standard code entries are not to be entered for Activity Group and Specific Activity (boxes 2 and 3).

Uncodable Activity (Box 5). M-Missed Round. I - Inaccurate or incomplete information so that correct coding is not possible.

(The items described above must be recorded in the correct spaces provided at the top of the card. This is essential for filing and tabulating purposes.)

Other Information: Parts of the Standard Activity Card can be completed prior to the time of observation: the name of the staff member, the Employee Group, the date, and the time of the random moments. It is simpler if the observer or school clerk does this clerical work before each day because there may be little free time available between rounds.

Description of Activities. The observer or school clerk must describe each activity in the space provided on the Activity Card, and if there is time between rounds, she can register the alphabetic and numeric codes in Boxes 2 and 3 respectively. The descriptive detail should include not only the type of activity but, wherever possible, its purpose. Precise description is essential for the editing process.

SUPPLEMENTARY ACTIVITY CARD

The Supplementary Activity Card (which is the reverse side of the Standard Activity Card) is used by staff members who record their own activity when working beyond the regularly scheduled workday. When a staff member is on business outside the building during regular business hours, it is less cumbersome to have the observer or school clerk question the staff member upon her return to the school and then code the Standard Activity Card retroactively.

Whenever the Supplementary Activity Card is used by a staff member, the following information should be recorded (see Appendix B): name of staff member; date; description of major activities engaged in, including types and purposes and the times each started and ended. It is not expected that the notes will describe every minor activity engaged in or those activities outside the scope of this analysis (see Special Code, page 34). Judgment should be exercised regarding the number of activities to be listed on the form. The work recorded should be selected on the basis of both time and value considerations---the length of time spent on the activity and a judgment of its importance. The information which is recorded on each activity should contain the details needed to code the activity. More than one card may be used for a block of time if necessary. Staff members who fill out these cards should be familiar with what information is required for coding.

The following are descriptions of activities appropriate for recording on Supplementary Cards and illustrations of the respective card entries.

On September 20, 1963 Miss Betty Jones, social worker at the Day Care Nursery, left her house about 9 A.M. (actually at 9:04) and drove to the Smith residence where she interviewed Mrs. Smith. The interview, which dealt with the admission of the Smith child to the Nursery began at 9:33 and ended at 10:28. After a stop for coffee and a phone call to her office, she went to the Community Council building where a meeting of the Committee on Day Care needs was scheduled until noon. Before the meeting began there was an opportunity to discuss a new health regulation for nursery schools with a Health Department official who also sat on the committee. From 12:13 p.m., when the meeting actually ended, until 1:30 Miss Jones had lunch, shopped, and then drove to the Nursery.

Illustrative card entries are as follows:

Jones, Betty	9/20/63
Interviewed Mrs. Smith, at her home, re-admission of child A-22	9 A.M.-10:30
Coffee R-85	10:30 - 11
Meeting, Committee on Day Care Needs R-50	11 - 12:15 P.M.
Lunch R-81	12:15 - 1:30

As mentioned earlier, this information could have been obtained verbally by the observer or school clerk and coded retroactively on a Standard Activity Card. It should be noted that all information contained on the Supplementary Card used for out-of-office business should eventually be transferred to Standard Activity Cards so that, in the tabulations, all regular hours work can be included together.

Another hypothetical illustration concerns the director of School House Nursery, Mrs. Ada Brown, who worked after the close of the regular school day at 3:30 P.M. on October 3, 1963. By 3:40 she was able to leave and went to the Educational Supplies Store where she purchased art materials and cleaning supplies. That task was completed a little before the store closed (5:00 P.M.) and then Mrs. Brown went home. At 5:47 the Chairman of the School House Nursery Board of Directors called: he would arrive a few minutes late for the 8 o'clock meeting, but they should proceed without him. The meeting actually started at 8:06 and lasted until 9:55 P.M.. Topics discussed were the annual meeting--open house, elections to the Board, recruitment of teachers and the budget. Most of the meeting time was devoted to budgetary matters.

Illustrative card entries are as follows:

Brown, Ada	10/3/63
Shopping - Educ. supplies G-99	3:45 P.M. - 5
Board meetings, mainly on budget Q-70	8:00 - 10:00 P.M.

These hypothetical entries illustrate a few guides for recording activities on the Supplementary Activity Cards. First, it should be evident that stopwatch precision is not expected but that time entries close to the nearest quarter hour will provide data of sufficient accuracy for the purpose at hand. Second, when a related series of activities are involved, only the one which consumed the largest proportion of time need be recorded. (Hence Miss Jones did not record the drive to the Smith home, but only the interview. Similarly, Mrs. Brown did not record purchasing the cleaning supplies because most of the time was occupied with looking at art supplies, and for the same reason Mrs. Brown just recorded the budget work during the Board meeting.) Third, very brief or minor business activities need not be recorded (e.g., Miss Jones' phone call to the office, her brief chat with the Health Department officer, Mrs. Brown's phone conversation with the Board Chairman).

OBSERVATION AND CODING PROCEDURES

Day Sheet

The Day Sheet is a record form to be used by the observer or school clerk in preparing the Standard Activity Cards and for noting down any problems or questions. One day sheet for each observation period should be provided to the observer or school clerk about one week ahead of time. Each sheet includes the date of the observation day, the name of the center, the observer's or school clerk's name, and the list of random moments for the day. (See Appendix C for an example of this format.) The Day Sheet also contains some reminders for the observer or clerk and a place to record unusual or missed rounds. The Day Sheet is used as follows:

The observer or school clerk is to complete one card per random moment for every staff member. Even though some staff members may not be scheduled to work that particular day, a card should still be completed for them.

"Off-duty" can be written across the front of the card for any random moment that occurs while they are not scheduled to work, and special codes exist for sick leave, vacation, etc. The number of cards completed and passed in to the project staff should equal the number of random moments times the number of staff members (e.g., 9 random moments x 10 staff members = 90 cards.)

As mentioned previously, the Standard Activity Card should be partially filled in prior to the observation day by using the Day Sheet which lists the random moments. The research staff will provide the observer or school clerk with a list of staff members to be coded and the hours they are to work.

Random Moments

A set of random moments is recorded on the Day Sheets provided for the time analysis. The number of moments in each set is determined by the sampling plan devised for the school or center by staff of the Project, (see page 32).

The random moments are prepared so as not to occur before the usual starting time or after the usual closing time of the school or center. (The procedure to be followed by the observer who is not at the school or center for the full school session is described on pages 39-41). The sets of moments should permit at least a fifteen minute interval between rounds of staff contacts for collecting activity data. If experience indicates that more time is needed for completing a round, then a longer interval would have to be considered. Until other arrangements are made, or if the time between rounds is not sufficient on a particular day for some unusual reason, the second round should begin as soon as possible after completion of the first round, even if it is somewhat late in starting.

Making a Round

When a random moment occurs, the observer or school clerk begins a series of contacts with staff in order to describe the activity in which each is then engaged. This series of contacts, as has been mentioned before, is called a round.

If possible, the round should begin immediately after a random moment occurs. Insofar as is practical, staff should be contacted in the same order for each round. If a staff member is not available when his turn comes up and cannot be located even at the end of the round, he should be considered as out of the building and later asked to describe the activity he was engaged in at the random moment.

The random moment is the time set when the observer or school clerk begins making the round to contact staff. It may take a few minutes to reach one or another staff member. The activity to be coded is the one the staff member is engaged in when the contact is made, not the task she was performing exactly at the random moment.

The activity at the time of contact should be accurately described and coded even if it seems, at the time, to be unrepresentative. What matters is that the picture built up over the entire study period be a representative miniature, and essential to that aim is fidelity of coding. Also in regard to a single activity which may seem unusual, all staff should realize one characteristic of the time estimates to be obtained by this random moment sampling project. The time estimates will be reliable only for groups of employees; a much larger number of random moments than are collected for this Cost Analysis Project would be required to obtain reliable estimates of an individual employee's time (see p. 32).

During one round of each observation period, preferably one of the last two, the observer or school clerk should supply designated staff with Supplementary Activity Cards and, if necessary, explain how they are to be used for recording after-hours work.

Handling the School Clerk's Time in the Study

The school clerk should prepare a card for herself just as she does for other staff members. She should code the card for the activity which preceded the specific random moment, that is, the activity which was interrupted to make the specific round. In most instances the interrupted activity will be one not related to the time analysis. Sometimes, however, it might be connected with the time study as, for example, preparing Day Sheets for a week in advance, or filing cards for some previous round. The school clerk should make every effort to avoid rescheduling her work because of her advance knowledge of the scheduled random moments.

Optional List of Coding Decisions

The School clerk or observer may find it helpful to keep an informal list of decisions made on those activities particularly difficult to code. Such a list may be a valuable reference for the observer or school clerk and the research staff when the same activity re-occurs. Especially in the early phase of the study it is important to review carefully any coding problems. Examination of the purpose of an activity will often resolve an otherwise perplexing coding problem. Of necessity, some activities will have to be coded as miscellaneous, but this should be done as a last resort (and a description of the activity recorded on the card).

Some Special Situations

In the case of the random moment procedure, it may happen that no one-- the school clerk or any other member of the staff-- is able to make a particular round or rounds for a whole day because of illness or emergency. The study would not be seriously jeopardized if such a situation occurred only a few times in the year. When it does happen, and when there is no practical way to get the information later in the day or on the next day, note this fact on the day sheet and on the cards- M (Missed Round) in box 5- that would normally have been completed.

Another special situation is the occurrence of a random moment a few minutes before the end of the workday (e.g., at 4:50 P.M.). In this case the observer or school clerk should begin her round, if possible, and continue to contact staff until closing time. Staff not contacted before closing time should be asked the next day what activity they had been engaged in at the random moment, if the random moment procedure is being used. If it is a random day, sometimes it is possible to ascertain the activities of staff members not contacted (e.g., if it is known that they transport children or they have just gone home). If it is not possible to do this, the Activity Card should be marked 'M" (Missed Round) in box 5 and a reason provided. The same comment should be entered on the Day Sheet under "Unusual or Missed Rounds".

A somewhat different special situation is the occurrence of a random moment at the start of a workday which is delayed because of exceptional circumstances (e.g., snow storms). In this situation the random moment should be (retroactively) processed as for activities outside the building during regular hours.

EDITING ACTIVITY CARDS

These cards are the basic data records for the time analysis. From these cards will be prepared the tabulating cards to be electronically processed. Therefore all activity cards must be examined for legibility, fidelity to coding instructions, and completeness.

In addition to familiarity with the classification scheme and the procedural instructions, a few guides and reminders may be helpful in editing the cards.

The editing task in general will be eased by recalling the groupings into which the specific activity code numbers are organized: Program Activities numbered 01-13 pertain to direct work with children; those numbered from 20-28 apply to activities with parents; items in the 30's refer to staff discussions; the 40's are used for work with students or researchers; writing and clerical work is coded in the 60's; number 99 is used for miscellaneous Program Activity work not elsewhere classifiable. Only work classified in the Administrative Activity Group is given a number in the 70's. And code numbers in the 80's apply only to Personal Activities (letter code R).

The editing process includes an examination of all activity cards to make sure there are no "impossible" activity classifications, e.g., B-04 (Transportation and Supervise children during nap), or I-23 (Travel to home of parent in connection with Student Training). Appendix A, A Summary of Staff Codes, will be very useful for this editing task.

Particular editing attention must be given to cards with Special Codes: if Special Code "C" is entered on the Standard Card (in Box 4), no entries are to be made in Boxes 2 and 3; however, if Special Codes A or B are recorded, then there should be entries in Boxes 2 and 3.

When a coding discrepancy is found and it is feasible to correct the code, an attempt should be made to do so. (E.g., personnel records of sick leave, etc. may be helpful, or the staff person whose activity is involved might be consulted.) If it is not feasible, the card should be marked I (Inaccurate or incomplete information) in box 5 and a notation made on the Day Sheet that a card was miscoded. A reasonably limited number of discrepancies can be accomodated without seriously affecting the results of the time analysis. However, every effort should be made to avoid coding errors.

Regarding the random moment procedure, a card file should be provided for editing and storing Standard Activity Cards prior to sending them to the research office. The Day Sheets and Supplementary Cards are also to be sent to that office. (Envelopes are provided for that purpose and the postage costs will be reimbursed by the Research Project.) Activity Cards and Day Sheets completed for one week are to be mailed in at the end of that week, unless a greater time lag is necessary for subsequent editing or a longer storage period is arranged. Upon arrival at the research office, the cards will undergo further editing.

In the random day procedure, the post-observation session (see p. 37) is to be used for editing all the cards on the basis of written and verbal descriptions made by the observer. All cards should be reviewed, and changed where necessary.

BRIEF SUMMARY OF PROCEDURES

Standard Activity Cards are prepared on the basis of the random moments listed on the Day Sheet and the staff members selected for observation. Then at randomly selected moments during the workday, the observer or school clerk begins a round of contacts with staff members to determine the code for the activity each is engaged in when contacted. The code for the activity is recorded on a Standard Activity Card. If a staff member who is regularly scheduled to work at the time of the random moment is not present during the round of contacts, the observer or school clerk should question the staff member regarding the out-of-building activities upon her return and then code the activities retroactively. An alternative, though more cumbersome, method for recording out-of-building activities is to request the staff member to record all of the activities on a Supplementary Card. If the latter method is used, the information should eventually be transferred to Standard Activity Cards to ease the tabulation process.

To capture after-hours work, the observer or school clerk should present the appropriate staff members with Supplementary Cards which should be completed for activities done after-hours on the day of observation.

All completed Standard Activity Cards are examined for possible errors in coding and any unusual situations are recorded on the Day Sheet. For the random moment procedure, the school clerk collects all Supplementary Cards completed by staff members on activities outside of the regular work schedule on a daily basis; the activities recorded thereon are coded. On a weekly basis, the completed Day Sheets, Standard Activity Cards, and Supplementary Activity Cards are sent to the Project office in special envelopes provided for the purpose.

For the random day procedure, the observer will bring all Standard Activity Cards to the Project Office for the post-observation session during which editing will be done. The Supplementary Activity Cards will be sent by the school to the research office and the research staff will code the activities recorded.

APPENDIX A

A SUMMARY OF STAFF CODES

COMPONENTS OF CODE
I - ACTIVITY GROUP------Why Activity Performed
II - SPECIFIC ACTIVITY---What Activity Performed
III - SPECIAL CODE--------For Multi-purpose or Federated Agencies

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I LETTER CODE FOR ACTIVITY GROUP (Indicates Purpose)

PROGRAM ACTIVITY GROUPS

(Plus any administrative work directly connected)

A -- Admission Process
B -- Transportation
C -- Parent Counseling
D -- Child Care Service
E -- Nutritional Service
F -- Health Service
G -- Educational Service
H -- Parent Group Activities
I -- Student Training
J -- Study Activities
K -- Community Activities

ADMINISTRATIVE ACTIVITY GROUP

Q -- All codes for activities undertaken for administrative purposes use the letter Q. If the activity is connected primarily or significantly with one of the other program groups, the letter designating that program group should be used. Only if the administrative activity is directed toward the overall program, or significantly involves more than one program group, should code Q be used, followed only by Numerical Codes 70-78.

PERSONAL ACTIVITY GROUP

R -- Use only Numerical Codes 81 - 85.

II NUMERICAL CODE FOR SPECIFIC ACTIVITY (Describes activities. See instructions on use in each Activity Group.)

01--Drive, Supervise Children in Transit To/From School/Center		B									
02--Supervise, Help Children Dress/Undress				D							
03--Supervise, Help Children in Washing Up and Toileting				D							
04--Supervise Children During Rest or Nap Period				D							
07--Educational, Play Activities							G				
08--Supervise, Help Children Pick Up, Put Away Toys & Materials							G				
09--Activity re. Child Needing Special Attention							G				
10--Examine Children for Signs of Illness, Infection, etc.						F					
11--Comfort, Treat, Help an Injured or Ill Child						F					
12-- Supervise Eating, Help Serve, Feed Children					E						
13--Observe, Talk With a Child Whose Admission Is Being Considered	A										
14--Arrange Supplies, Materials, Equipment in Preparation for Program				D	E		G				
15--Daily Cleanup, Put Away Supplies, Materials, Equipment				D	E		G				
20--Talk With Parent During Scheduled Conference At School/Center	A		C					H			
21--Talk With Parent Informally At School/Center	A		C					H			
22--Talk With Parents At Their Home	A		C					H			

21--Talk With Parent Informally At School/Center	A		C					H			
22--Talk With Parents At Their Home	A		C					H			
23--Travel To Home of Parents	A		C					H			
24--Talk With Parent via Telephone	A		C					H			
25--Refer Applicant to Other Nursery School or Day Care Center	A										
26--Refer Parents to Source of Help for Themselves or Child	A		C								
27--Formal or Informal Educational/Social Meeting with Parent Group								H			
30--Discuss, Confer with Staff re. Specific Child or Family	A	B	C	D	E	F	G				
31--Communicate with Consultant, etc. re. Specific Child or Family	A		C		E	F	G				
32--Staff Discussion or Planning of General Program Activity	A	B	C	D	E	F	G	H			
40--Student-Staff Discussion on Student's Work									I		
41--Talk About Student's Work With University/College Supervisor									I		
42--Talk About Program for Research/Educational Purposes										J	
50--Participate in Community Activities re. Nursery School/Day Care											K
51--Participate in Community Activities re. Other Programs, Needs											K
60--Write, Dictate Report, Record on Specific Child or Family	A		C	D	E	F	G				
61--Write, Dictate Other Report or Record	A	B	C	D	E	F	G	H	I	J	K
62--Write or Dictate Letters	A	B	C		E	F	G	H	I	J	K
63--Clerical and Secretarial Work	A	B	C	D	E	F	G	H	I	J	K
99--Miscellaneous	A	B	C	D	E	F	G	H	I	J	K

ADMINISTRATIVE ACTIVITY GROUP (See Instructions)

Q-70	Fiscal Activities
Q-71	Fund Raising
Q-72	Public Information
Q-73	Program Planning and Evaluation
Q-74	Personnel Administration and Supervision
Q-75	Staff Development
Q-76	Supplies, Repairs, Maintenance
Q-77	Board Activities
Q-78	Miscellaneous Administration

PERSONAL ACTIVITY GROUP

R-81	Lunch Time
R-82	Sick Leave
R-83	Vacation
R-84	Special Leave
R-85	All Other

UNCODABLE ACTIVITY

M-	Missed Round
I-	Inaccurate or Incomplete Information

III SPECIAL CODE (See Instructions)

A -- Activity Entirely Within Scope of Time Analysis
B -- Activity Partially Within Scope of Time Analysis
C -- Activity Entirely Outside Scope of Time Analysis

APPENDIX B

STANDARD ACTIVITY CARD

Enter Codes in Boxes

1	2	3	4	5
☐	☐	☐	☐	☐
EMPLOYEE GROUP	ACTIVITY GROUP	SPECIFIC ACTIVITY*	SPECIAL CODE	UNCODABLE

I Administrator
II Teacher
III Teacher: Stu/Ass't.
IV Social Worker
V Clerical
VI Other

A. Entirely Within Scope
B. Partially Within Scope
C. Entirely Outside Scope

M. Missed Round
I. Inaccurate or incomplete information

Month Day Year

___ A.M.
___ P.M.

Hour Min.

Name of Employee

Miscellaneous (Give detail) (A-99, B-99...; Q-78...etc.)

CAP-11-A

* If decision is made, as recommended, to code only program activity group, box for specific activity would be omitted.

SUPPLEMENTARY ACTIVITY CARD**

Name of Employee

Month Day Year

Description of Activity	Time Started	Time Ended

CAP-11-B

** Only if decision has been made to use Supplementary Card; otherwise omit this side.

COST ANALYSIS PROJECT

APPENDIX C

DAY SHEET FOR TIME STUDY

NAME OF CENTER:
OBSERVER:

DATE:
DAY:

RANDOM MOMENTS

NOTES:

1. Prepare and complete a Standard Activity Card for each staff member for every moment listed above.
2. Write a concise description (indicating the nature of the activity and its purpose) of every activity observed even though the code may be very clear to you. Use the bottom part of the Activity Card for this purpose.
3. Provide Supplementary Cards to the appropriate staff members.*
4. Please arrive at the center about 10 minutes ahead of time in order to organize your material and to identify the staff members and to introduce yourself to them. (This is applicable to outside observers and not to school clerk.)

Remarks about Unusual or Missed Rounds:

Mrs. Smith was away at a conference on 5/6/64; codes represent activities as recalled by Mrs. Smith on 5/7/64.

*Unless decision is made not to use Supplementary Activity Cards.